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IN THE

Supreme Court of the United States

AT&T CORP., *et al.*,

Petitioners,

v.

UNITED STATES TELECOM ASSOCIATION, *et al.*,

Respondents.

Petition for a Writ of Certiorari to the United States Court of Appeals for the District of Columbia Circuit Circuit

PETITION FOR A WRIT OF CERTIORARI APPENDIX—VOLUME ONE

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APPENDIX A

UNITED STATES COURT OF APPEALS,
DISTRICT OF COLUMBIA CIRCUIT.

Nos. 00-1012, 00-1015, 00-1025, 01-1075, 01-1102, 01-1103, 03-1310 to 03-1320, 03-1324 to 03-1331, 03-1338, 03-1339, 03-1342, 03-1347, 03-1348, 03-1360, 03-1372, 03-1373, 03-1385, 03-1391, 03-1393, 03-1394, 03-1395, 03-1400, 03-1401, 03-1424 & 03-1442.

UNITED STATES TELECOM ASSOCIATION,
Petitioner,

v.

FEDERAL COMMUNICATIONS COMMISSION and UNITED STATES OF AMERICA,
Respondents.

BELL ATLANTIC TELEPHONE COMPANIES, *et al.*,
Intervenors.

Argued Jan. 28, 2004.
Decided March 2, 2004.

Before: EDWARDS and RANDOLPH, *Circuit Judges*, and WILLIAMS, *Senior Circuit Judge*.

WILLIAMS, *Senior Circuit Judge*:

The Telecommunications Act of 1996, Pub.L. 104-104, 110 Stat. 56, codified at 47 U.S.C. § 151 et seq. (the "Act"), sought to foster a competitive market in telecommunications. To enable new firms to enter the field despite the advantages

of the incumbent local exchange carriers ("ILECs"), the Act gave the Federal Communications Commission broad powers to require ILECs to make "network elements" available to other telecommunications carriers, *id.* §§ 251(c)(3),(d), most importantly the competitive local exchange carriers ("CLECs"). The most obvious candidates for such obligatory provision were the copper wire loops historically used to carry telephone service over the "last mile" into users' homes. But Congress left to the Commission the choice of elements to be "unbundled," specifying that in doing so it was to

> consider, at a minimum, whether . . . the failure to provide access to such network elements would *impair* the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.

Id. § 251(d)(2) (emphasis added).

The Act became effective on February 8, 1996, a little more than eight years ago. Twice since then the courts have faulted the Commission's efforts to identify the elements to be unbundled. The Supreme Court invalidated the first effort in *AT&T Corp. v. Iowa Utilities Board*, 525 U.S. 366, 389-90, 119 S.Ct. 721, 734, 142 L.Ed.2d 835 (1999) ("*AT&T*"). We invalidated much of the second effort (including separately adopted "line-sharing" rules) in *United States Telecom Association v. FCC*, 290 F.3d 415 (D.C.Cir.2002) ("*USTA I*"). The Commission consolidated our remand in that case with its "triennial review" of the scope of obligatory unbundling and issued the Order on review here. *See* Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket Nos. 01-338 et al., FCC 03-36, 18 FCC Rcd 16978 (Aug. 21, 2003) ("Order"); Errata, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket Nos. 01- 338 et al., FCC 03-227, 18

FCC Rcd 19020 (Sep. 17, 2003). Again, regrettably, much of the resulting work is unlawful.

After a brief summary of the legal background, we address first the ILECs' claims, then the CLECs' claims, then the ILEC and CLEC claims relating to a special area, enhanced extended links ("EELs"), and finally a couple of miscellaneous claims.

I. *Legal Background*

Section 251(c)(3) of the Act imposes on each ILEC the duty to provide any requesting telecommunications carrier with

> access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory in accordance with . . . the requirements of this section and section 252 of this title.

47 U.S.C. § 251(c)(3).

The statute says that the ILECs may charge a "just and reasonable rate" for these unbundled network elements ("UNEs"), *see id.* § 252(d)(1), and the Commission adopted as its standard "total element long-run incremental cost," or "TELRIC." Under this criterion UNE prices are to be "based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent LEC's wire centers." 47 CFR § 51.505(b)(1). In litigation over this pricing rule, which the Supreme Court upheld in *Verizon Communications v. FCC*, 535 U.S. 467, 122 S.Ct. 1646, 152 L.Ed.2d 701 (2002) ("*Verizon*"), it appears to have been common ground that, because of ongoing technological improvement (among other things), prices so determined would fall well below the costs the ILECs had actually historically incurred in constructing the elements. *Id.* at 503-

04, 508-09, 122 S.Ct. at 1668, 1670. Certainly the ardent preferences of the parties as to the scope of the Act's unbundling requirements—the ILECs seeking a narrow reading, the CLECs seeking a broad one—suggest such a relationship.

In its first effort to interpret the "impairment" standard of § 251(d)(2), the Commission held that lack of unbundled access to an element would "impair" a CLEC's ability to provide telecommunications service "if the quality of the service the entrant can offer, absent access to the requested element, declines and/or the cost of providing the service rises." *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First Report and Order, CC Docket No. 96-98, 11 FCC Rcd 15499, 15643 (1996) ("First Report and Order"), ¶ 285.

The Supreme Court found this reading of "impair" unreasonable in two respects. First, the Commission had irrationally refused to consider whether a CLEC could self-provision or acquire the requested element from a third party. *AT&T*, 525 U.S. at 389, 119 S.Ct. at 734. Second, the Commission had considered *any* increase in cost or decrease in quality, no matter how small, sufficient to establish impairment—a result the Court concluded could not be squared with the "ordinary and fair meaning" of the word "impair." *Id.* at 389-90 & n. 11, 119 S.Ct. at 734-735 & n. 11. The Court admonished the FCC that in assessing which cost differentials would "impair" a new entrant's competition within the meaning of the statute, it must "apply *some* limiting standard, rationally related to the goals of the Act." *Id.* at 388, 119 S.Ct. at 734.

Responding to the *AT&T* decision, the Commission adopted a new interpretation under which a would-be entrant is "impaired" if, "taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that

element *materially diminishes* a requesting carrier's ability to provide the services it seeks to offer." *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696, 3725 (1999) ("Third Report and Order"), ¶ 51 (emphasis added). But in *USTA I* we held that this new interpretation of "impairment," while an improvement, was still unreasonable in light of the Act's underlying purposes.

The fundamental problem, we held, was that the Commission did not differentiate between those cost disparities that a new entrant in *any* market would be likely to face and those that arise from market characteristics "linked (in some degree) to natural monopoly . . . that would make genuinely competitive provision of an element's function wasteful." *USTA I*, 290 F.3d at 427. This distinction between different kinds of incumbent/entrant cost differentials is qualitative, not merely quantitative, which is why the Commission's addition of a requirement that the cost disparity be "material" was inadequate. *Id.* at 427-28.

We also made clear that the Commission's broad and analytically insubstantial concept of impairment failed to pursue the "balance" between the advantages of unbundling (in terms of fostering competition by different firms, even if they use the very same facilities) and its costs (in terms both of "spreading the disincentive to invest in innovation and creating complex issues of managing shared facilities," *id.* at 427), a balance that we found implicit in the *AT&T* Court's insistence on an unbundling standard "rationally related to the goals of the Act," *id.* at 428 (quoting *AT&T*).

We also objected to the Commission's decision to issue, with respect to most elements, broad unbundling requirements that would apply "in every geographic market and customer class, without regard to the state of competitive impairment in any particular market." *USTA I*, 290 F.3d at

422. Though the Act does not necessarily require the Commission to determine "on a localized state-by-state or market-by-market basis which unbundled elements are to be made available," *id.* at 425 (quoting Third Report and Order, 15 FCC Rcd at 3753, ¶ 122), it does require "a more nuanced concept of impairment than is reflected in findings . . . detached from any specific markets or market categories." *USTA I*, 290 F.3d at 426. Thus, the Commission is obligated to establish unbundling criteria that are at least aimed at tracking relevant market characteristics and capturing significant variation.

Finally, we vacated the Commission's decision to require ILECs to unbundle the high-frequency portion of their copper loops to requesting CLECs—a practice known as "line sharing" and used by CLECs to provide broadband DSL service—because the Commission had failed to consider adequately whether intermodal competition from cable providers tilted the balance against this form of unbundling in the broadband market.

In response to *USTA I* the Commission again revised its definition of impairment. This time around, the Commission determined that a CLEC would "be impaired when lack of access to an incumbent LEC network element poses a *barrier or barriers to entry,* including operational and economic barriers, that are *likely to make entry into a market uneconomic.* That is, we ask whether all potential revenues from entering a market exceed the costs of entry, taking into consideration any countervailing advantages that a new entrant may have." Order ¶ 84 (emphasis added). The Commission clarified that the impairment assessment would take intermodal competition into account. *Id.* ¶¶ 97-98.

The Commission responded to our demand for a more "nuanced" application of the impairment standard by purporting to adopt a "granular" approach that would consider "such factors as specific services, specific geographic loca-

tions, the different types and capacities of facilities, and customer and business considerations." *Id.* ¶ 118. Where the Commission believed that the record could not support an absolute national impairment finding but at the same time contained too little information to make "granular" determinations, it adopted a provisional nationwide rule, subject to the possibility of specific exclusions, to be created by state regulatory commissions under a purported delegation of the Commission's own authority.

The Commission also resolved to use the "at a minimum" language in § 251(d)(2) to "inform [its] consideration of unbundling in contexts where some level of impairment may exist, but unbundling appeared likely to undermine important goals of the 1996 Act." *Id.* ¶ 173. Specifically, in connection with two broadband elements, "fiber-to-the-home" ("FTTH") and hybrid loops (see below), it brought into the balance the risk that an unbundling order might deter investment in such facilities—contrary, as it saw the matter, to the statutory goal of encouraging prompt deployment of "advanced telecommunications capability." *Id.* ¶¶ 172-73 (quoting § 706 of the Act). Additional issues also emerged in the rulemaking and will be addressed below.

The ILECs filed two mandamus petitions with this Court, arguing that the Order violated our decision in *USTA I*, and in addition filed a petition for review here. Various CLECs, state commissions, and an association of state utility consumer advocates filed petitions for review in several other circuits; these petitions were transferred to the Eighth Circuit under the random lottery procedure established in 28 U.S.C. § 2112(a)(3), and then transferred to this court by the Eighth Circuit under 28 U.S.C. § 2112(a)(5). We consolidated the petitions for review with the mandamus petitions.

II. *ILEC Objections*

A. *Unbundling of Mass Market Switches*

The Commission made a nationwide finding that CLECs are impaired without unbundled access to ILEC switches for the "mass market," consisting of residential and relatively small business users. This finding was based primarily on the costs associated with "hot cuts" (discussed below), which must be performed when a CLEC provides its own switch. Order ¶¶ 464-75. But the Commission, apparently concerned that a blanket nationwide impairment determination might be unlawfully overbroad in light of the record evidence of substantial market-by-market variation in hot cut costs, delegated authority to state commissions to make more "nuanced" and "granular" impairment determinations.

First, the Commission directed the state commissions to eliminate unbundling if a market contained at least three competitors in addition to the ILEC, *id.* ¶¶ 498-503, or at least two non-ILEC third parties that offered access to their own switches on a wholesale basis, *id.* ¶¶ 504-05. For purposes of this exercise the Commission gave the states virtually unlimited discretion over the definition of the relevant market. *Id.* ¶¶ 495-97. Second, where these "competitive triggers" are not met, the Commission instructed the states to consider whether, despite the many economic and operational entry barriers deemed relevant by the Commission, competitive supply of mass market switching was nevertheless feasible. *Id.* ¶¶ 494, 506-20. The Commission also instructed the states to explore specific mechanisms to ameliorate or eliminate the costs of the "hot cut" process. *Id.* ¶¶ 486-90. The Commission mentioned, for example, the possible use of "rolling" hot cuts, a process in which CLECs could use ILEC switches for some time after a customer selected the CLEC as its provider, and after an accumulation of such customer changes, the ILEC would make all the necessary hot cuts in one fell swoop. *Id.* ¶¶ 463,

521-24. If a state failed to perform the requisite analysis within nine months, the Commission would step into the position of the state commission and do the analysis itself. *Id.* ¶ 190. Finally, the Order provided that a party "aggrieved" by a state commission decision could seek a declaratory ruling from the Commission, though with no assurance when, or even whether, the Commission might respond. *Id.* ¶ 426; *see also* 47 CFR § 1.2.

We consider first whether the Commission's subdelegation of authority to the state commissions is lawful. We conclude that it is not. We then consider whether the Commission's nationwide impairment determination can nevertheless survive, even without the safety valve provided by subdelegation to the states. We conclude that it cannot. We therefore vacate the Commission's decision to order unbundling of mass market switches, subject to the stay discussed in Part VI.

1. *Subdelegation of § 251(d)(2) impairment determinations to state commissions*

The FCC acknowledges that § 251(d)(2) instructs "the Commission" to "determine[ ]" which network elements shall be made available to CLECs on an unbundled basis. But it claims that agencies have the presumptive power to subdelegate to state commissions, so long as the statute authorizing agency action refrains from foreclosing such a power. Given the absence of any express foreclosure, the Commission argues that its interpretation of the statute on the matter of subdelegation is entitled to deference under *Chevron U.S.A. v. Natural Resources Defense Council*, 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). And it claims that its interpretation is reasonable given the state commissions' independent jurisdiction over the general subject matter, the magnitude of the regulatory task, and the need for close cooperation between state and federal regulators in this area.

The Commission's position is based on a fundamental misreading of the relevant case law. When a statute delegates authority to a federal officer or agency, subdelegation to a subordinate federal officer or agency is presumptively permissible absent affirmative evidence of a contrary congressional intent. *See United States v. Giordano*, 416 U.S. 505, 512-13, 94 S.Ct. 1820, 1824, 40 L.Ed.2d 341 (1974); *Fleming v. Mohawk Wrecking & Lumber Co.*, 331 U.S. 111, 121-22, 67 S.Ct. 1129, 1134, 91 L.Ed. 1375 (1947); *Halverson v. Slater*, 129 F.3d 180, 185-86 (D.C.Cir.1997); *United States v. Mango*, 199 F.3d 85, 90-91 (2d Cir.1999); *Inland Empire Pub. Lands Council v. Glickman*, 88 F.3d 697, 702 (9th Cir.1996); *United States v. Widdowson*, 916 F.2d 587, 592 (10th Cir.1990), *vacated on other grounds*, 502 U.S. 801, 112 S.Ct. 39, 116 L.Ed.2d 18 (1991). But the cases recognize an important distinction between subdelegation to a *subordinate* and subdelegation to an *outside party*. The presumption that subdelegations are valid absent a showing of contrary congressional intent applies only to the former. There is no such presumption covering subdelegations to outside parties. Indeed, if anything, the case law strongly suggests that subdelegations to outside parties are assumed to be improper absent an affirmative showing of congressional authorization. *See Shook v. District of Columbia Fin. Responsibility & Mgmt. Assistance Auth.*, 132 F.3d 775, 783-84 & n. 6 (D.C.Cir.1998). *See also Nat'l Ass'n of Reg. Util. Comm'rs ("NARUC") v. FCC*, 737 F.2d 1095, 1143-44 & n. 41 (D.C.Cir.1984); *Nat'l Park and Conservation Ass'n v. Stanton*, 54 F.Supp.2d 7, 18-20 (D.D.C.1999). (We discuss below some cases that might, mistakenly, be thought to support a contrary view.)

This distinction is entirely sensible. When an agency delegates authority to its subordinate, responsibility—and thus accountability—clearly remain with the federal agency. But when an agency delegates power to outside parties, lines of accountability may blur, undermining an important

democratic check on government decision-making. *See NARUC*, 737 F.2d at 1143 n. 41; cf. *Printz v. United States*, 521 U.S. 898, 922-23, 117 S.Ct. 2365, 2377, 138 L.Ed.2d 914 (1997). Also, delegation to outside entities increases the risk that these parties will not share the agency's "national vision and perspective," *Stanton*, 54 F.Supp.2d at 20, and thus may pursue goals inconsistent with those of the agency and the underlying statutory scheme. In short, subdelegation to outside entities aggravates the risk of policy drift inherent in any principal-agent relationship.

The fact that the subdelegation in this case is to state commissions rather than private organizations does not alter the analysis. Although *United States v. Mazurie*, 419 U.S. 544, 95 S.Ct. 710, 42 L.Ed.2d 706 (1975), noted that "limits on the authority of *Congress* to delegate its legislative power . . . are [ ] less stringent in cases where the entity exercising the delegated authority itself possesses independent authority over the subject matter," *id.* at 556-57, 95 S.Ct. at 717 (emphasis added), that decision has no application here: it involved a constitutional challenge to an express *congressional* delegation, rather than an administrative subdelegation, and the point of the discussion was to distinguish the still somewhat suspect case of congressional delegation to purely private organizations.

Two Ninth Circuit cases have invoked *Mazurie* to suggest that limitations on an administrative agency's power to subdelegate might be less stringent if the delegee is a sovereign entity rather than a private group. *See Assiniboine & Sioux Tribes v. Bd. of Oil and Gas*, 792 F.2d 782, 795 (9th Cir.1986); *Southern Pacific Transp. Co. v. Watt*, 700 F.2d 550, 556 (9th Cir.1983). But in neither of these cases was this principle necessary to the outcome, and in neither did the court seek to justify the extension of *Mazurie* from its context—the validity of an express delegation of Congress's powers.

We therefore hold that, while federal agency officials may subdelegate their decision-making authority to subordinates absent evidence of contrary congressional intent, they may not subdelegate to outside entities—private or sovereign—absent affirmative evidence of authority to do so.

The Commission's plea for *Chevron* deference is unavailing. A general delegation of decision-making authority to a federal administrative agency does *not*, in the ordinary course of things, include the power to subdelegate that authority beyond federal subordinates. It is clear here that Congress has not delegated to the FCC the authority to subdelegate to outside parties. The statutory "silence" simply leaves that lack of authority untouched. In other words, the failure of Congress to use "Thou Shalt Not" language doesn't create a statutory ambiguity of the sort that triggers *Chevron* deference. *See Ry. Labor Exec. Ass'n v. Nat. Mediation Bd.*, 29 F.3d 655, 671 (D.C.Cir.1994) ("Were courts to *presume* a delegation of power absent an express *withholding* of such power, agencies would enjoy virtually limitless hegemony, a result plainly out of keeping with *Chevron* and quite likely with the Constitution as well."); *see* also *Aid Ass'n for Lutherans v. U.S. Postal Service*, 321 F.3d 1166, 1174-75 (D.C.Cir.2003); *Motion Picture Ass'n of Am. v. FCC*, 309 F.3d 796, 801 (D.C.Cir.2002); *Ethyl Corp. v. EPA*, 51 F.3d 1053, 1060 (D.C.Cir.1995).

The FCC invokes a number of other cases in support of its idea of a presumptive authority to subdelegate to entities other than subordinates. These are inapposite because they do not involve subdelegation of decision-making authority. They merely recognize three specific types of legitimate outside party input into agency decision-making processes: (1) establishing a reasonable condition for granting federal approval; (2) fact gathering; and (3) advice giving. The scheme established in the Order fits none of these models.

First, a federal agency entrusted with broad discretion to permit or forbid certain activities may condition its grant of permission on the decision of another entity, such as a state, local, or tribal government, so long as there is a reasonable connection between the outside entity's decision and the federal agency's determination. Thus in *United States v. Matherson*, 367 F.Supp. 779, 782-83 (E.D.N.Y.1973), *aff'd* 493 F.2d 1339 (2d Cir.1974), the court upheld the decision of the Fire Island National Seashore Superintendent to condition issuance of federal seashore motor vehicle permits on the applicant's acquisition of an analogous permit from an adjacent town. And *Southern Pacific*, 700 F.2d at 556, citing *Matherson*, sustained the Secretary of Interior's conditioning of right-of-way permits across tribal lands on the tribal government's approval. In contrast to these cases, where an agency with broad permitting authority had adopted an obviously relevant local concern as an element of its decision process, the Commission here has delegated to another actor almost the entire determination of whether a specific statutory requirement—impairment—has been satisfied.

Second, there is some authority for the view that a federal agency may use an outside entity, such as a state agency or a private contractor, to provide the agency with factual information. While *Assiniboine & Sioux Tribes* found that a delegation of decision-making power to a state board would be unlawful, it left open whether reliance by the federal agency on the state board for "nondiscretionary activities such as compiling, hearing, and transmitting technical information might not be permissible and desirable." 792 F.2d at 795. And *National Association of Psychiatric Treatment v. Mendez*, 857 F.Supp. 85, 91 (D.D.C.1994), upheld a federal certifying agency's decision to hire a private contractor to conduct surveys of residential treatment centers and pass its results on to the agency, which retained final certification authority. While the FCC has sought to characterize the state commissions' role here as fact finding,

see Order ¶¶ 186, 493, in fact the Order lets the states make crucial decisions regarding market definition and application of the FCC's general impairment standard to the specific circumstances of those markets, with FCC oversight neither timely nor assured. The Commission's attempted punt does not remotely resemble nondiscretionary information gathering.

Our own decision in *Tabor v. Joint Board for Enrollment of Actuaries*, 566 F.2d 705, 708 n. 5 (D.C.Cir.1977), seems to straddle the two above variants of permissible relationships. There the federal Joint Board for Enrollment of Actuaries, exercising its broad discretion to set conditions for certifying actuaries to administer ERISA pension plans, required applicants *either* to pass a Board exam *or* to pass an exam administered by one of the recognized private national actuarial societies. 566 F.2d at 708 n. 5. The court found that the process was "superintended by the Board in every respect," and that the Board had not abdicated its decision-making authority but merely created a reasonable "short-cut," contingent on the approval of certain private organizations, to satisfy one of the Board's own regulatory requirements. *Id.* The opinions in both *Southern Pacific* (from our first category) and *Mendez* (from our second) invoke *Tabor*.

Neither *Tabor* nor its progeny relied on any principle that subdelegations to outside parties were presumptively valid, since the result in each of these cases was supportable on the theory that no subdelegation of decision-making authority had actually taken place. To the extent that *Tabor*'s citation of *United States v. Giordano*, 416 U.S. 505, 512-13, 94 S.Ct. 1820, 40 L.Ed.2d 341 (1974), might be thought to suggest that external delegations enjoy the same favorable presumption as internal ones, that suggestion was clearly rejected by our decision in *Shook*, 132 F.3d at 783-84 & n. 6.

Third, a federal agency may turn to an outside entity for advice and policy recommendations, provided the agency makes the final decisions itself. Thus in *Shook*, 132 F.3d at 784, we disapproved the D.C. Control Board's delegation of governance powers over D.C. schools to a private Board of Trustees, but we suggested that the Control Board could use an entity of that sort "as an advisory board charged with recommending certain actions and policies to the Control Board." *See* also *Stanton*, 54 F.Supp.2d at 19-20 & n. 6; *Mendez*, 857 F.Supp. at 91. An agency may not, however, merely "rubber-stamp" decisions made by others under the guise of seeking their "advice," *see Assiniboine & Sioux Tribes*, 792 F.2d at 795, nor will vague or inadequate assertions of final reviewing authority save an unlawful subdelegation, *see Stanton*, 54 F.Supp.2d at 19, 20-21.

Finally, the Commission's claim that *Diamond International Corp. v. FCC*, 627 F.2d 489, 492-93 (D.C.Cir.1980), and *New York Telephone Co. v. FCC*, 631 F.2d 1059, 1065 (2d Cir.1980), uphold "virtually indistinguishable" FCC subdelegations to state commissions, FCC Br. at 25, is (or should be) embarrassing. These cases involved a wholly unrelated issue: whether the FCC properly interpreted the Communications Act when it decided to permit carriers to file state tariffs for local services used in connection with interstate services. The issue was not delegation of federal authority but rather the scope of federal authority to preempt state authority.

We note that the ILEC petitioners invoke standard *expressio unius* reasoning to attack the delegation. They point out that other provisions of the Act—e.g., the procedures for arbitration and approval of agreements under § 252—expressly specify a state role, and urge us to infer congressional preclusion of such a role under § 251(d)(2). We do not rely on this theory. Our conclusion would be unchanged if no provision of the Act mentioned any role for

the state commissions, because the general conferral of regulatory authority does not empower an agency to subdelegate to outside parties. That said, the fact that other provisions of the statute carefully delineate a particular role for the state commissions, but § 251(d)(2) does not, reassures us that the our result is consistent with congressional intent.

We therefore vacate, as an unlawful subdelegation of the Commission's § 251(d)(2) responsibilities, those portions of the Order that delegate to state commissions the authority to determine whether CLECs are impaired without access to network elements, and in particular we vacate the Commission's scheme for subdelegating mass market switching determinations. (This holding also requires that we vacate the Commission's subdelegation scheme with respect to dedicated transport elements, discussed below.) We now turn to whether, without that safety valve, the FCC's national impairment findings for mass market switches can be reconciled with *USTA I*.

2. *Impairment in provision of mass market switching*

Without the (unlawful) innovation of transforming a national impairment finding into a provisional national impairment finding from which state commissions could deviate if they found no impairment under local market conditions, the FCC's Order on mass market switches must stand or fall as a nationwide determination that CLECs are impaired in the mass market without unbundled access to ILEC switches. After reviewing the record, we conclude that we must vacate the (no longer provisional) national impairment finding as inconsistent with our conclusion in *USTA I* that the Commission may not "loftily abstract[ ] away from all specific markets," 290 F.3d at 423, but must instead implement a "more nuanced concept of impairment," *id.* at 426.

The Commission's national finding of impairment for mass market switches is based on entry barriers related to the need for ILECs to perform "hot cuts" (manual connections) for CLECs if the latter choose to self-provision mass market switches. *See* Order ¶¶ 459, 464-76. A "hot cut" requires an ILEC technician to physically disconnect a customer loop from the ILEC switch (to which the loop was hard-wired) and re-wire the loop to the CLEC switch, while simultaneously reassigning the customer's phone number from the ILEC switch to the CLEC switch. Order ¶ 465 n.1409. A hot cut must be performed every time a CLEC seeks to connect a new customer. In contrast, ILEC connection of a customer generally only requires a software change (unless the customer had already switched to a CLEC switch, in which case the hot cut must be undone via the same physical re-connection). Order ¶ 465. The Commission explains that, according to evidence in the record, the need to perform hot cuts can delay a CLEC in providing service with its own switch and can cause service disruptions, and that these delays and disruptions, even if minor, can damage customer perceptions of CLEC service and impede the CLECs' ability to compete. Order ¶ ¶ 466-67.

Though the Commission in its brief alludes to "other operational and economic factors" that might create barriers to competition in mass market switching, FCC Br. at 36, the Order makes clear that the national impairment finding was based solely on hot cuts. Order ¶¶ 459 n.1405 & 476. (The other factors were to be considered by state commissions in the exercise of the unlawfully delegated authority.) There appears to be no suggestion that mass market switches exhibit declining average costs in the relevant markets, or even that switches entail large sunk costs. The Commission nonetheless concluded that hot cut costs are not the sort of cost disparity that a new entrant into any market might face, since they arise due to the fact that "incumbent LECs' networks were designed for use in a single carrier, noncompetitive environ-

ment," which means that CLECs face operational costs that the ILECs do not. Order ¶ 465.

Though certain sections of the Order suggest that impairment due to hot cut costs might be sufficiently widespread to support a general national impairment finding even in the absence of more "nuanced" determinations to be made by the state commissions, Order ¶¶ 459, 470, 473, the Commission at other points concludes that a national finding, without the possibility of market-specific exceptions authorized by state commissions, would be inconsistent with *USTA I*. *See* Order ¶¶ 186-88, 196, 425, 485, 493. At the very least, these latter passages demonstrate that the Commission's own conclusions do not clearly support a non-provisional national impairment finding for mass market switches, and thus require us to vacate and remand.

Moreover, we doubt that the record supports a national impairment finding for mass market switches. In another context the Commission has already addressed a kindred issue. Under § 271 of the Act, the subset of ILECs that used to be operating companies of AT&T before its break-up (the Bell Operating Companies, or "BOCs") can enter the interLATA market (the market for calls between different local access and transport areas) only by showing, among other things, that they are providing CLECs adequate unbundled access to various network elements, including local loops. *See* Act § 271(c)(2)(B)(iv). The Commission acknowledges that in that context it has in fact found that the BOCs were doing so "in the quantities that competitors demand and at an acceptable level of quality," *see, e.g.*, Memorandum Opinion and Order, *Application by SBC Communications, Inc., et al., Pursuant to Section 271 of the Telecommunications Act of 1996 To Provide In-Region, InterLATA Services in Texas*, 15 FCC Rcd 18354, 18480 (2000), ¶ 247; Memorandum Opinion and Order, *Application of Ameritech Michigan Pursuant to Section 271 of the*

Communications Act of 1934, as Amended, To Provide In-Region, InterLATA Services in Michigan, 12 FCC Rcd 20543, 20601-02 (1997), ¶ 110. In none of those proceedings did the Commission find the hot cut process inadequate to meet this standard. *See* Separate Statement of Chairman Michael K. Powell Approving in Part and Dissenting in Part, FCC 03-36 ("Powell Statement") at 4. But it distinguished those cases on the ground of uncertainty about whether ILECs would be able to handle the increases in hot cut demand that would flow from denying CLECs access to switches as UNEs. Order ¶ 469 & n.1435. The ILECs contend that in fact hot cut processes are "scalable," so that existing sufficiency can be projected onto larger-scale usage. *See* ILEC Br. at 16 (citing Powell Statement at 5; Memorandum Opinion and Order, *Application by Bell Atlantic New York for Authorization Under Section 271 of the Communications Act to Provide In-Region, InterLATA Service in the State of New York*, 15 FCC Rcd 3953, 4114 (1999), ¶ 308).

The record on the matter is mixed, perhaps sufficiently so that the Commission's "provisional" assumption to the contrary might be sustainable as an absolute finding, given the deference we would owe the Commission's predictive judgment and the inevitability of *some* over-and under-inclusiveness in the Commission's unbundling rules. But the Commission implicitly conceded that hot cut difficulties could not support an undifferentiated nationwide impairment finding. Order ¶¶ 425, 485, 493. Moreover, we made clear in *USTA I* that the Commission cannot proceed by very broad national categories where there is evidence that markets vary decisively (by reference to its impairment criteria), at least not without exploring the possibility of more nuanced alternatives and reasonably rejecting them. 290 F.3d at 425-26. One can imagine the Commission successfully identifying criteria based, for example, on an ILEC's track record for speed and volume in a market, integrated with some projection of the demand increase that would result

from withholding of switches as UNEs. The Commission, however, has made no visible effort to explore such possibilities.

Additionally, the ILEC petitioners suggested several more narrowly-tailored alternatives to a blanket requirement that mass market switches be made available as UNEs. Considering such narrower alternatives is essential in light of our admonition in *USTA I* that the Commission must balance the costs and benefits of unbundling. 290 F.3d at 429. "Rolling" hot cuts are one such proffered alternative. Under that concept the Commission could require unbundled access to ILEC switching on new lines for 90 days (or some other period of time) in order to give the ILEC time to perform the accumulated backlog of hot cuts simultaneously, Order ¶¶ 463, 521-24, or the Commission could require the ILEC to provide unbundled access to its switch only until it was able to perform the hot cut. The FCC's only real answer to these proposed alternatives, at least the only answer that appears in the Order or the FCC's brief, is that the Commission directed the state commissions to consider these alternatives and to implement them if they would remedy impairment. *See* FCC Br. at 38-39; Order ¶¶ 463, 521-24. But since we have held such subdelegation unlawful, that response is unavailable.

Moreover, even if the FCC had adopted some lawful mechanism for making exemptions from its general national rule, it could not necessarily rely on the existence of that mechanism as the sole justification for not adopting a more narrowly tailored rule. While a rational rule that would otherwise be impermissibly broad can be saved by "safety valve" waiver or exception procedures, the mere existence of a safety valve does not cure an irrational rule. *See ICORE, Inc. v. FCC*, 985 F.2d 1075, 1080 (D.C.Cir.1993); *ALLTEL Corp. v. FCC*, 838 F.2d 551, 561-62 (D.C.Cir.1988). And a rule is irrational in this context if a party has presented to the agency a narrower alternative that has all the same

advantages and fewer disadvantages, and the agency has not articulated any reasonable explanation for rejecting the proposed alternative.

We therefore vacate the FCC's determination that ILECs must make mass market switches available to CLECs as UNEs, subject to the stay discussed in Part VI below, and remand to the Commission for a re-examination of the issue.

3. *The Commission's definition of "impairment"*

The Commission claims that no party in this litigation has challenged the concept embodied in its new interpretation of "impairment." All the disputes, it says, are about the proper *implementation* of that standard. FCC Br. at 18. Not exactly. For example, although the ILEC petitioners' objections to the Commission's mass market switching provisions are all within the framework of the Commission's subdelegation scheme, a number of them clearly go to the character of the impairment standard embodied in that scheme.

As a general matter the ILECs argue the Commission's impairment standard is so open-ended that it imposes no meaningful constraints on unbundling, and would be unlawful even if applied by the FCC itself. ILEC Br. at 28; *see* also Separate Statement of Commissioner Kathleen Q. Abernathy Approving in Part and Dissenting in Part, FCC 03-36 at 6-7 & n. 16 (claiming that the Commission's multifactor test is no different from the totality-of-the-circumstances approach struck down in *USTA I*). More specifically, the ILECs claim that the Commission's unbundling test unlawfully permits states to consider as a potential source of impairment retail rates that are held below cost by state regulation against the ILECs' will, and unlawfully precludes consideration of intermodal competition when determining whether a market is suitable for competitive supply.

On the general point about the open-endedness of the Commission's standard, we observe that the Order's inter-

prettation of impairment is an improvement over the Commission's past efforts in that, for the most part, the Commission explicitly and plausibly connects factors to consider in the impairment inquiry to natural monopoly characteristics (declining average costs throughout the range of the relevant market), *see* Order ¶¶ 75-76 & nn.245, 256, 258-59, ¶ 87 & n.283, or at least connects them (in logic that the ILECs do not seem to contest) to other structural impediments to competitive supply. These barriers include sunk costs (Order ¶ 75 & n.244, ¶¶ 76, 80, 86, 88), ILEC absolute cost advantages (Order ¶ 75 & n.247, ¶ 90 & n.302), first-mover advantages (Order ¶ 75 & n.249, ¶ 89), and operational barriers to entry within the sole or primary control of the ILEC (Order ¶ 91). In contrast to the First Report and Order and the Third Report and Order, the Commission has clarified that only costs related to structural impediments to competition are relevant to the impairment analysis.

In light of our remand, this is not the occasion for any review of the Commission's impairment standard as a general matter; it finds concrete meaning only in its application, and only in that context is it readily justiciable. A few general observations are pertinent, however.

Relation of "impairment" to the "at a minimum" clause. We note that there are at least two ways in which the Commission could have accommodated our ruling in *USTA I* that its impairment rule take into account not only the benefits but also the costs of unbundling (such as discouragement of investment in innovation), in order that its standard be "rationally related to the goals of the Act." *See USTA I*, 290 F.3d at 428. One way would be to craft a standard of impairment that built in such a balance, as for example by hewing rather closely to natural monopoly features. The other is to use a looser concept of impairment, with the costs of unbundling brought into the analysis under § 251(d)(2)'s "at a minimum" language. The Commission has chosen the

latter, and we cannot fault it for doing so. This is especially true as the statutory structure suggests that "impair" must reach a bit beyond natural monopoly. While for "proprietary" network elements the statute mandates a decision whether they are "necessary," § 251(d)(1)(A), for nonproprietary ones it requires a decision whether their absence would "impair" the requester's provision of telecommunications service, § 251(d)(1)(B). Thus, in principle, there is no statutory offense in the Commission's decision to adopt a standard that treats impairment as a continuous rather than as a dichotomous variable, and potentially reaches beyond natural monopoly, but then to examine the full context before ordering unbundling.

That said, we do note that in at least one important respect the Commission's definition of impairment is vague almost to the point of being empty. The touchstone of the Commission's impairment analysis is whether the enumerated operational and entry barriers "make entry into a market uneconomic." Order ¶ 84. Uneconomic by whom? By *any* CLEC, no matter how inefficient? By an "average" or "representative" CLEC? By the most efficient existing CLEC? By a hypothetical CLEC that used "the most efficient telecommunications technology currently available," the standard that is built into TELRIC? Compare 47 CFR § 51.505(b)(1). We need not resolve the significance of this uncertainty, but we highlight it because we suspect that the issue of whether the standard is too open-ended is likely to arise again.

Intermodal alternatives. As for the ILECs' claim that the Commission's impairment standard unlawfully excludes consideration of intermodal alternatives, we observe that the Commission expressly stated that such alternatives are to be considered when evaluating impairment. Order ¶¶ 97-98, 443. Whether the weight the FCC assigns to this factor is reasonable in a given context is an question that we need not

decide, except insofar as we reaffirm *USTA I*'s holding that the Commission cannot ignore intermodal alternatives. 290 F.3d at 429.

Impairment in markets where state regulation holds rates below historic costs. In the name of "universal service," state regulators have commonly employed cross-subsidies, tilting rate ceilings so that revenues from business and urban customers subsidize residential and rural ones. *USTA I*, 290 F.3d at 422. On remand from our decision in *USTA I*, the Commission decided to consider regulated below-cost retail rates as a factor that may "impair" CLECs in competing for mass market customers. *See* Order ¶ 518. The ILECs object strenuously, and it appears virtually certain that the issue will recur on remand.

The Commission's brief treatment of the issue makes no attempt to connect this "barrier" to entry either with structural features that would make competitive supply wasteful or with any other purposes of the Act (other than, implicitly, the purpose of generating "competition," no matter how synthetic). The Commission rightly says that if prevailing rates are too low to elicit CLEC entry even with the benefit of UNEs, the unbundling mandate will have no consequences. True enough. But it is no defense of a rule to say that it is harmless in those cases where it has no effect at all; that presumably is true even of the most absurd rule.

The interesting case is the one where TELRIC rates are so low that unbundling *does* elicit CLEC entry, enabling CLECs to cut further into ILEC revenues in areas where the ILECs' service is mandated by state law—and mandated to be offered at artificially low rates funded by ILECs' supracompetitive profits in other areas. If the scheme of the Act is successful, of course, the very premise of these below-cost rate ceilings will be undermined, as those supracompetitive profits will be eroded by Act-induced competition. In competitive markets, an ILEC can't be used as a piñata. The Commission has said

nothing to address these obvious implications, or otherwise to locate its treatment of the issue in any purposeful reading of the Act.

We recognize, of course, that the historic accounting costs relied upon by state regulators are, like TELRIC itself, an artificial construct that may not closely track true economic cost. But that is no justification for the Commission's refusal to evaluate the probable consequences of its approach, and to adopt, in the light of those estimations, a policy that it can reasonably say advances the goals of the Act.

B. *Unbundling of High-Capacity Dedicated Transport Facilities*

1. *Unlawfulness of the delegation to the states and the national impairment finding*

The Commission has made multiple impairment findings with respect to dedicated transport elements (transmission facilities dedicated to a single customer or carrier), varying the findings by capacity level. First, it found that competing providers are not impaired without unbundled access to "OCn" transport facilities (very high-capacity transport facilities or bandwiths within such facilities), Order ¶¶ 359, 372, and all petitioners appear to accept that finding. Second, the Commission found that competitors are impaired without unbundled access to DS1 transport, DS3 transport, and dark fiber transport, but made this nationwide impairment finding subject to variation by state commissions applying specific "competitive triggers." *Id.* ¶ 359; *see also id.* ¶¶ 381-93. Explaining this latter decision, the Commission observed that its nationwide impairment findings for DS1, DS3, and dark fiber were based on "aggregated data" and frankly acknowledged that competitive alternatives are available "in some locations." *Id.* ¶ 398. The Commission declared that it did not need to resolve "the factual identification of where alternative facilities exist. . . . [B]ecause we recognize that

the record is insufficiently detailed to make more precise findings regarding impairment, we delegate to the states, subject to appeal back to this Commission if a state fails to act, a factfinding role to determine on a route-specific basis where alternatives to the incumbent LECs' networks exist such that competing carriers are no longer impaired." *Id.* ¶ 398.

Specifically, the Commission instructed states to apply two competitive triggers on a route-by-route basis. *Id.* ¶¶ 399-401. First, the "self-provisioning" trigger required states to find no impairment if three or more competitors had deployed non-ILEC transport facilities along a specific route. *Id.* ¶¶ 400, 405-09. Second, the "wholesale facilities" trigger required states to find no impairment if two or more competing carriers were immediately able and willing to sell transport along a given route at wholesale rates. *Id.* ¶¶ 400, 412-16. Even where the triggers were not satisfied, the FCC allowed a finding of non-impairment if a state, applying seven criteria (all quite fluid and none quantified), determined that the route was suitable for multiple competitive supply. *Id.* ¶ 410. If a state believed that there was impairment on a specific route despite facial satisfaction of the self-provisioning trigger, it could petition the Commission for a waiver. *Id.* ¶ 411.

As we explained in the mass market switching context, the Commission may not subdelegate its § 251(d) authority to state commissions. Although the Commission characterizes the states' role as "fact-finding," Order ¶ 394, the characterization is fictitious. It is the states, not the FCC, that determine whether the competitive triggers, or the Commission's numerous and largely unquantified alternative criteria, are satisfied; it is the states that issue binding orders, subject only to the Commission's discretionary review. And, as with mass market switching, the Order itself suggests that the Commission doubts a national impairment finding is

justified on this record. *Id.* ¶¶ 360, 394, 398. We therefore vacate the national impairment findings with respect to DS1, DS3, and dark fiber and remand to the Commission to implement a lawful scheme.

2. *Remaining dedicated transport issues*

The ILECs have raised two additional issues about the Commission's treatment of dedicated transport, and the CLECs yet another. We address the ILECs' objections here, and that of the CLECs (which relates to so-called "entrance facilities") below in the portion of the opinion devoted to their claims.

a. *Route-specific analysis of dedicated transport*

In *USTA I* we expressed skepticism regarding whether there could be impairment in markets "where the element in question—though not literally ubiquitous—is significantly deployed on a competitive basis," giving as a specific example interoffice dedicated transport. 290 F.3d at 422. We also instructed the Commission, as noted above, to apply a "nuanced" concept of impairment connected to "specific markets or market categories." *Id.* at 426. Any process of inferring impairment (or its absence) from levels of deployment depends on a sensible definition of the markets in which deployment is counted.

For dedicated transport elements the Commission decided that the appropriate market was not a geographic market (e.g., a Metropolitan Statistical Area ("MSA"), as the ILECs urged, or general customer class), but rather a specific point-to-point route. Thus, for example, the fact that dedicated transport facilities are widely deployed within one MSA does not, in the Commission's view, necessarily preclude a finding of impairment between two specific points within that MSA, if deployment has not satisfied the Commission's competitive "triggers" on that route.

We do not see how the Commission can simply ignore facilities deployment along similar routes when assessing impairment. Suppose points A, B, and C are all in the same geographic market and are similarly situated with regard to the "barriers to entry" that the Commission says are controlling. *See* Order ¶¶ 84 et seq. Suppose further that multiple competitors supply DS1 transport between points A and B, but only the ILEC and one other CLEC have deployed DS1 transport between A and C. The Commission cannot ignore the A-B facilities deployment when deciding whether CLECs are impaired with respect to A-C deployment without a good reason. The Commission does explain why competition on the A-B route should not be *sufficient* to establish competition is possible on the A-C route, Order ¶ 401, but this cannot explain the Commission's implicit decision to treat competition on one route as *irrelevant* to the existence of impairment on the other. Nor does the Commission explain whether, and why, the error costs (both false positives and false negatives) associated with a route-by-route market definition are likely to be lower than the error costs associated with alternative market definitions. While it may be infeasible to define the barriers to entry in a manageable form, i.e., in such a way that they may usefully be applied to MSAs (or other plausible markets) as a whole, the Commission nowhere suggests that it explored such alternatives, much less found them defective.

b. *Wireless providers' access to unbundled dedicated transport*

In addition to their general challenge to the FCC's provisional national finding that competitors are impaired without access to dedicated transport facilities, the ILEC petitioners also attack the Commission's conclusion that providers of wireless service (also known as commercial mobile radio services, or "CMRS") qualify for unbundled access to these facilities. According to the ILECs, the

Commission not only failed to conduct the requisite impairment analysis for wireless providers, but in fact found that wireless growth has been "remarkable": 90% of the U.S. population lives in areas served by at least three wireless providers, 40% of Americans and 61% of American households own a wireless phone, wireless prices have been steadily declining, and 3-5% of wireless customers use wireless as their only phone, treating it as a full substitute for traditional land line service. Order ¶ 53. Although the ILECs implicitly concede that wireless providers would be impaired if they were denied *any* access to ILEC dedicated interoffice transport facilities, they point out that wireless providers have traditionally purchased such access from ILECs at wholesale rates (a transaction classified, since adoption of the Act, under § 251(c)(4)). And the data above clearly show that wireless carriers' reliance on special access has not posed a barrier that makes entry uneconomic. Indeed, the multi-million dollar sums that the Commission regularly collects in its auctions of such spectrum, *see, e.g.*, *Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Seventh Report, FCC 02-179 (July 3, 2002), Table 1B, and that firms pay to buy already-issued licenses, *see, e.g.*, *Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Eighth Report, FCC 03-150 (July 14, 2003), ¶¶ 42-44, seem to indicate that wireless firms currently expect that net revenues will, by a large margin, more than recover all their non-spectrum costs (including return on capital).

The FCC and the wireless intervenors do not challenge the assertion that the current regime has witnessed a rapidly expanding and prosperous market for wireless service. Rather, they rely on the principle that "evidence that requesting carriers are using incumbent LEC tariffed services" is not "relevant to [the] unbundling determination." Order ¶ 102.

The Commission offers several justifications for its decision to treat special access availability as irrelevant to the impairment analysis. None withstands scrutiny. First, the Commission suggests that it would be

> inconsistent with the Act if we permitted the incumbent LEC to avoid all unbundling merely by providing resold or tariffed services as an alternative. Such an approach would give the incumbent LECs unilateral power to avoid unbundling at TELRIC rates simply by voluntarily making elements available at some higher price.

Order ¶ 102 (footnote omitted). While the possibility to which the Commission points is undeniable, its implications for the Act's implementation aren't as horrifying as the Commission seems to think. After all, the purpose of the Act is not to provide the widest possible unbundling, or to guarantee competitors access to ILEC network elements at the lowest price that government may lawfully mandate. Rather, its purpose is to stimulate competition—preferably genuine, facilities-based competition. Where competitors have access to necessary inputs at rates that allow competition not only to survive but to flourish, it is hard to see any need for the Commission to impose the costs of mandatory unbundling.

We recognize that, given the ILECs' incentive to set the tariff price as high as possible and the vagaries of determining when that price gets so high that the "impairment" threshold has been crossed, a rule that allowed ILECs to avoid unbundling requirements simply by offering a function at lower-than-TELRIC rates might raise real administrable issues. Those complications might in principle support a blanket rule treating the availability of ILEC tariffed service as irrelevant to impairment. But the FCC hasn't defended its decision in those terms or even tried to explicate these complications. Moreover, where (as here) market evidence already demonstrates that existing rates outside the com-

pulsion of § 251(c)(3) don't impede competition, and where (as here) there is no claim that ILECs would be able drastically to hike those rates, those possible complications recede even farther in the background.

The FCC also suggests that the ILECs' view would effectively read unbundled access out of the Act. Both the Commission and the wireless intervenors argue that this conclusion finds support in *Iowa Utilities I*, which held that ILECs could not avoid unbundling requirements by classifying certain features as "services" rather than "network elements." 120 F.3d at 809. There the ILECs had argued that the legislative history of the Act suggested that functions offered as services were meant to be governed by the resale provisions of § 251(c)(4) rather than the unbundling provisions of § 251(c)(3). In rejecting this argument, the Eighth Circuit said that the provision "for the resale of telecommunications services . . . does not establish resale as the exclusive means through which a competing carrier may gain access to such services. We agree with the FCC that such an interpretation would allow the incumbent LECs to evade a substantial portion of their unbundling obligation under subsection 251(c)(3)." 120 F.3d at 809. Thus the court found that an ILEC offer of functions for sale as services did not preclude classifying these functions as network elements to be unbundled under § 251(c)(3). But that decision in no way supports a claim that the availability of services for sale under § 251(c)(4) is irrelevant to whether there is impairment of the sort that would require unbundling.

The Commission next argues that considering special access availability in the impairment analysis would "be contrary to the Act's requirement that unbundled facilities . . . should be priced at cost-based rates and our determination that TELRIC is the appropriate methodology for determining those rates. . . ." Order ¶ 102. This is circular. The question is which facilities must be unbundled, or, more specifically,

what the relevant benchmark is for assessing whether entry is "impaired" if non-ILECs don't have access to UNEs (at whatever rate the Commission might choose to prescribe).

Finally, the FCC suggests that tariffed services "present different opportunities and risks for the requesting carrier than the use of UNEs or non-incumbent LEC alternatives." Order ¶ 102. This may well be true in certain cases, and on an appropriate record the Commission might find impairment even when services were available from ILECs outside § 251(c)(3). But this possibility doesn't give the Commission carte blanche to omit consideration of such alternatives in its impairment analysis. And it clearly cannot justify a finding of impairment with respect to wireless, where these different "opportunities and risks" have obviously not made competitive entry uneconomic.

We therefore hold that the Commission's impairment analysis must consider the availability of tariffed ILEC special access services when determining whether would-be entrants are impaired, and vacate ¶¶ 102-03 of the Order. This of course still leaves the Commission free to take into account such factors as administrability, risk of ILEC abuse, and the like. What the Commission may not do is compare unbundling only to self-provisioning or third-party provisioning, arbitrarily excluding alternatives offered by the ILECs.

C. *Network Modification Requirements*

In *Iowa Utilities I*, the Eighth Circuit struck down an FCC rule that required ILECs to provide interconnection and UNEs superior in quality to those that the ILEC provided for itself. 120 F.3d at 812-13. But the court nonetheless "endorse[d] the Commission's statement that 'the obligations imposed by sections 251(c)(2) and 251(c)(3) include modifications to incumbent LEC facilities to the extent necessary to accommodate interconnection or access to network

elements.'" *Id.* at 813 n. 33. The line between impermissible "superior quality" requirements and permissible "modification" requirements is not always clear.

In the Order under review, the Commission "require[d] incumbent LECs to make routine network modifications to unbundled transmission facilities used by requesting carriers where the requested transmission facility has already been constructed." Order ¶ 632. The Commission elaborated that "routine network modifications" include "those activities that incumbent LECs regularly undertake for their own customers," but do not include "construction of new wires ... for a requesting carrier." *Id.* Applying this standard, the Commission determined that when ILECs supply high-capacity loops as unbundled elements, they must "engage in activities necessary to activate loops that are not currently activated in the network." *Id.* ¶ 633. The FCC gave as examples of such necessary loop modifications: "rearrangement or splicing of cable; adding a doubler or repeater; adding an equipment case; adding a smart jack; installing a repeater shelf; adding a line card; and deploying a new multiplexer or reconfiguring an existing multiplexer." *Id.* ¶ 634.

The ILECs claim that these passages manifest a resurrection of the unlawful superior quality rules. We disagree. The FCC has established a clear and reasonable limiting principle: the distinction between a "routine modification" and a "superior quality" alteration turns on whether the modification is of the sort that the ILEC routinely performs, on demand, for its own customers. While there may be disputes about the application, the principle itself seems sensible and consistent with the Act as interpreted by the Eighth Circuit. Indeed, the FCC makes a plausible argument that requiring ILECs to provide CLECs with whatever modifications the ILECs would routinely perform for their own customers is not only allowed by the Act, but is

affirmatively demanded by § 251(c)(3)'s requirement that access be "nondiscriminatory." We needn't reach that claim, however, since the FCC's principle is at the very least reasonable and consistent with *Iowa Utilities I*.

The ILECs further object that the Order unlawfully permits states to find that ILECs are not entitled to compensation for making the requested modifications. We agree with the FCC that this challenge will not be ripe for judicial review until a state actually decides how much an ILEC may charge for a specific network modification.

III. *CLEC Objections*

A. *Unbundling of Broadband Loops*

The Commission declined to require ILECs to provide unbundled access to most of the broadband capabilities of mass market loops. In particular, it decided (subject to certain qualifications) not to require unbundling of the broadband capabilities of hybrid copper-fiber loops, Order ¶¶ 288-89, or fiber-to-the- home ("FTTH") loops, *id.* ¶¶ 273-77, and it also decided not to require ILECs to unbundle the high-frequency portion of copper loops, a practice known as "line sharing," *id.* ¶¶ 255-63. The Commission did require ILECs to unbundle the narrowband portion of hybrid loops, Order ¶ 296, but it permitted ILECs to use a different type of technology to connect the fiber feeder loop to the copper distribution portion of the loop than the ILEC itself used, in light of technological and engineering considerations, Order ¶ 297.

The CLEC petitioners attack these decisions as inconsistent with the Act. They argue, first, that CLECs are impaired without access to the broadband capabilities of loops and, second, that the Commission is obligated to unbundle any elements for which impairment has been shown. We consider these claims with respect to each broadband element in

question. We then consider the CLECs' claim that their access to the narrowband portion of hybrid loops is impaired by the FCC's decision permitting ILECs to substitute an allegedly inferior connection technology.

1. *Hybrid loops*

The Commission found some degree of impairment from competitors' lack of unbundled access to hybrid loops, Order ¶ 286, but also found that such impairment "at least partially diminishes with the increasing deployment of fiber," *id.*, and that unbundled access to copper subloops "adequately addresses" that impairment, *id.* § 291. Nonetheless, evidently assuming some degree of impairment, it proceeded to invoke the "at a minimum" language of § 251(d)(2) to weigh other statutory goals against that effect. Noting the directive in § 706(a) of the Act that the Commission should pursue "methods that remove barriers to infrastructure investment," it found that the costs of unbundling hybrid loops—stifling investment by both ILECs and CLECs in advanced telecommunications infrastructure—outweighed the benefits of removing this barrier to competition. *Id.* ¶¶ 286, 288, 290.

The CLECs object to this interpretation of the "at a minimum" clause, arguing that the Act prohibits "ad hoc" balancing of the statute's pro-competition goals with an allegedly conflicting goal derived from the uncodified § 706. They interpret the "at a minimum" clause to mean that the FCC may order unbundling even in the absence of an impairment finding if it finds concrete benefits to unbundling that cannot otherwise be achieved, and that it may refuse to order unbundling in the face of impairment findings if unbundling would conflict with some other unambiguous requirement of the Act, such as funding universal service.

The CLECs offer two main arguments to support their interpretation of the "at a minimum" clause. First, they claim that the Commission's interpretation contravenes the Act's

"stated purpose" of promoting competition, CLEC Br. at 18, a goal that is an "end in itself." *Id.* (quoting *Verizon*, 535 U.S. at 476, 122 S.Ct. 1646). But in fact the passage from *Verizon* on which the CLECs rely says that eliminating traditional ILEC monopolies "was considered *both* an end in itself *and* an important step toward the Act's other goals," including "boosting competition in broader markets." 535 U.S. at 476, 122 S.Ct. 1646 (emphasis added). Section 706(a) identifies one of the Act's goals beyond fostering competition piggy-backed on ILEC facilities, namely, removing barriers to infrastructure investment. The Commission thus acted reasonably in its interpretation of the "at a minimum" clause.

Second, the CLECs contend that failing to impose unbundling in the face of an impairment finding amounts to an unlawful decision to "forbear" from applying the requirements of § 251(c). *See* §§ 160(a),(d). Here they rely on *Association of Communications Enterprises ("ASCENT") v. FCC*, 235 F.3d 662, 665-68 (D.C.Cir.2001), in which, rejecting the Commission's argument that the exclusion of ILEC subsidiaries was a reasonable interpretation of the statutory phrase "successor or assign" in § 251(h)(2)(B)(ii), we held that the FCC couldn't exempt an ILEC subsidiary from § 251(c)(3) obligations unless it complied with the statutory forbearance requirements of § 160.

But § 160, prescribing when the Commission may forbear from applying statutory requirements, obviously comes into play only for requirements that exist; it says nothing as to what the statutory requirements are. Thus *ASCENT* turned on our finding that, even under *Chevron*'s forgiving standard, the Commission's exemption of subsidiaries was inconsistent with the statute. 235 F.3d at 668.

As we noted above in Part II.A.3, there are at least two ways in which the Commission could take into account the frustration of some of the Act's goals—such as encouraging facilities-based competition—that would flow from giving

§ 251(c)(3) unbundling too broad a scope. It could have built those offsets into its concept of "impairment" by reading that term narrowly, or it could have embraced a relatively broad reading of impairment and then considered, element by element, how an unbundling order might adversely affect the Act's other goals. The CLECs rightly point to *USTA I*'s observation that "impairment" was the "touchstone," 290 F.3d at 425, but that opinion, far from barring consideration of factors such as an unbundling order's impact on investment, clearly read the Act, as interpreted by the Supreme Court in *AT&T*, to mandate exactly such consideration, *id.* at 427-28.

We therefore hold that the Commission reasonably interpreted § 251(c)(3) to allow it to withhold unbundling orders, even in the face of some impairment, where such unbundling would pose excessive impediments to infrastructure investment.

But was the Commission's decision on hybrid loops, on this record, a legitimate application of that principle? The Commission explained that its decision would stimulate the infrastructure investment contemplated by § 706 in two ways. First, limiting access to the fiber portion of the hybrid loops would give ILECs incentives to deploy fiber (both feeder fiber and, eventually, FTTH), along with associated next-generation networking equipment, and to develop new broadband offerings for mass market consumers. Because unbundling orders reduce return on investment, such orders would inhibit ILECs from making risky investments in next-generation technology. Second, denying CLECs access to ILEC broadband capabilities will stimulate *them* to seek innovative access options for broadband, including self-deployment of new facilities; unbundling, by contrast, would be likely to blunt innovation by locking the CLECs into technological choices made by the ILECs. Order ¶¶ 290, 295.

The Commission also identified two additional considerations that would mitigate any negative impact on local competition in broadband. First, CLECs still have unbundled access to other loop alternatives in the ILEC network, including copper subloops, which allow CLECs to compete in the broadband market. Order ¶ 291. Second, intermodal competition in broadband, particularly from cable companies, means that, even if CLECs proved unable to compete with ILECs in the broadband market, there would still be vigorous competition from other sources. *Id.* ¶ 292.

The CLEC petitioners reject all these justifications, and pose a series of objections. First, they argue, the FCC should redress any investment disincentives for ILEC broadband loop investment not by withholding unbundling, but by modifying the UNE pricing rules. But as we have already held, § 251(d)(2)'s "at a minimum" clause allows the Commission to consider the effect on infrastructure investment when determining what elements must be unbundled. And the fact that the Commission and the Court have deemed TELRIC a reasonable methodology for pricing UNEs doesn't require the Commission to blind itself to the fact that TELRIC may itself be imperfect and may be implemented still more imperfectly. While the Commission might modify its UNE pricing rules to adequately reduce the negative impacts that it fears, until it has done so it may reasonably consider real-world risks in deciding what elements to unbundle.

Second, the CLECs insist that the record demonstrates that there is no need for additional incentives for investment in broadband infrastructure. With respect to broadband customers served by hybrid loops, ILECs have already extensively deployed fiber feeder loops, and, the CLECs claim, they would continue to do so even without any incentive from expected broadband revenues, since the narrowband cost savings from fiber feeder deployment alone

justify ILEC investment in fiber feeder. Provision of broadband involves additional electronic equipment, but the CLECs assert that the costs involved are negligible compared to the fiber upgrade, and that in fact most of these additional investments have already been made. As for alternative means of providing broadband service, the CLECs characterize the FCC's assertion that eliminating unbundled access to hybrid loops would stimulate ILEC investment in FTTH loops as pure speculation, inconsistent with record evidence that there is no consumer demand for services requiring such loops. And they say that the Commission may not tolerate an impairment of competition that would benefit consumers of today in order to create incentives for investment in systems for which there is no evidence of demand by consumers of tomorrow.

The Commission says little in the Order or in its brief to respond the assertion that ILECs would invest in fiber feeder even without revenue from broadband. Indeed, the Commission appears to concede that ILECs are already investing heavily in fiber feeder loops, Order ¶¶ 224, 290, and offers no specific evidence suggesting that unbundling the broadband capabilities of these loops would have a substantial negative impact on this investment. (Nor, to be sure, do the CLECs offer any sort of sophisticated econometric analysis demonstrating the likely marginal impact on investment.)

But there are at least three other aspects of the Commission's investment incentives argument to which the CLEC response is either inadequate or non-existent. First, the Commission suggested that greater incentives may be needed for ILECs to deploy the additional electronic equipment needed to provide broadband access over a hybrid loop. While the CLECs are correct that the Commission concluded that the deployment of this equipment was far less "costly, complex, and risky" than deployment of the fiber feeder,

Order ¶ 244, the Commission also noted that this equipment had not been widely deployed, and suggested that ILECs had been deterred by the "regulatory environment." Order ¶ 290 & n.838.

Second, the Commission noted that deployment of feeder fiber is the first step toward FTTH, and that limiting access to ILEC fiber facilities increases incumbents' incentives to develop and deploy FTTH. Order ¶¶ 272, 290. Though the CLECs dismissed this as "pure speculation," the Commission relied on submissions in the record that the CLECs have not directly impeached. Order ¶ 290 n.837. While the CLECs may be right that the Commission's judgment entails increasing consumer costs today in order to stimulate technological innovations for which there is not yet sufficient consumer demand, there is nothing in the Act barring such trade-offs. Cf. *Consumer Electronics Ass'n v. FCC*, 347 F.3d 291, 300-03 (D.C.Cir.2003) (upholding Commission rule that increased television prices in order to stimulate transition to digital TV, for which there is little present demand).

Third, the Commission rested its judgment not only on the perceived negative effect of unbundling on *ILEC* investment incentives but also on a conclusion that unbundling hybrid loops would deter *CLECs* themselves from investing in deploying their own facilities, possibly using different technology. Order ¶¶ 288, 290. Although the CLECs argue that this is inconsistent with the Commission's finding that for fiber loops, as for copper loops, "the costs are both fixed and sunk, and . . . deployment is characterized by scale economies," *id.* ¶ 240, that very paragraph, after weighing the various advantages of both ILECs and other entrants, concludes that "the barriers faced in deploying fiber loops, as opposed to existing copper loops, may be similar for both incumbent LECs and competitive LECs." Thus, while declining to unbundle hybrid loops might reduce broadband competition, the Commission reasonably concluded that such

a decision might be effective in stimulating investment in all-fiber loops.

We thus believe that, even if the CLECs are correct that unbundling would have no impact on ILEC investment in the fiber feeder portion of hybrid loops, the other investment disincentives the Commission identified are sufficient for us to uphold the reasonableness of the Commission's determination. Reading the Order as a whole, we see little sign that the Commission would have come out otherwise if it had given the CLEC arguments as much credit as they deserve. *See Indiana Muni. Power Agency v. FERC*, 56 F.3d 247, 256 (D.C.Cir.1995); *Carnegie Natural Gas Co. v. FERC*, 968 F.2d 1291, 1294 (D.C.Cir.1992).

Nor can we say that the Commission was arbitrary or capricious in thinking that any damage to broadband competition from denying unbundled access to the broadband capacities of hybrid loops is likely to be mitigated by the availability of loop alternatives or intermodal competition. With regard to loop alternatives, we agree with the CLECs that these alternatives are not a perfect substitute for the ILECs' hybrid loops, but we understand the Commission to say only that they are a partial substitute; they will mitigate, not eliminate, CLEC impairment. More important, we agree with the Commission that robust intermodal competition from cable providers—the existence of which is supported by very strong record evidence, including cable's maintenance of a broadband market share on the order of 60%, *see* Order ¶ 292—means that even if all CLECs were driven from the broadband market, mass market consumers will still have the benefits of competition between cable providers and ILECs. Although the CLECs point to evidence that CLEC broadband competition has played a role in constraining ILEC pricing, *see* Declaration of Robert D. Willig, ¶¶ 206-08, Joint Appendix ("J.A.") 885-87, the evidence itself is hardly rigorous and is offset by conflicting material, *see* Letter of

Susanne Guyer, Vice President, Verizon, at 2 (J.A. 2146), itself not rigorous. Thus the Commission's consideration of past pricing effects was not arbitrary, and in any event, as the discussion above shows, its overall judgment turned on a range of factors.

We therefore hold that the Commission's decision not to order unbundling of the broadband capacity of hybrid loops was based on permissible statutory considerations and supported by substantial evidence.

Although the Commission refused to unbundle the broadband portion of hybrid loops, it required ILECs to unbundle the narrowband portion, Order ¶ 296, and the CLECs raise an issue relating to the details of this unbundling. The Commission said for various technical reasons this would be more difficult for hybrid loops that used integrated digital loop carrier ("IDLC") equipment to connect the fiber feeder portion of the loop to the copper distribution portion than it would for those that used universal digital loop carrier equipment ("UDLC"). Order ¶ 297 & n.855.

The CLECs protest that the record "unambiguously established that UDLC substantially degrades the speed and quality of dial-up Internet access," CLEC Br. at 30, though they fail to point us to the portions of the record that supposedly establish this. The Commission acknowledges that "UDLC can, in some circumstances, negatively affect data transmission speed," FCC Br. 84 n.37, but it disputes the severity of the impact. Moreover, the Order requires that ILECs "present requesting carriers a technically feasible method of unbundled access." Order ¶ 297. Given the CLEC petitioners' failure to present or highlight evidence that the impact is severe, or to refute the Commission's technical analysis, we have no basis for finding the Commission decision on this issue arbitrary or capricious.

2. *Fiber-to-the-home ("FTTH") loops*

For FTTH loops, the Commission found relatively little impairment except in a specific, limited domain. Although FTTH deployment showed some characteristics in common with copper loops (the costs being "both fixed and sunk, and deployment [being] expensive," Order ¶ 274), the Commission believed that the revenue opportunities of FTTH deployment were great enough to "ameliorate many of the entry barriers." *Id.*; *see* also *id.* ¶ 276 (same, with respect to FTTH parallel to or in replacement of existing copper plant). With respect to new or so-called "greenfield" FTTH deployments (as for a new subdivision), it denied unbundling without qualification. *Id.* ¶ 275. For the "largely theoretical" scenario in which an ILEC constructed FTTH parallel to or in replacement of its existing copper plant ("overbuild"), it declined to find impairment as to broadband services, *id.* ¶ 276, but agreed with the CLECs' concern that an ILEC might replace and ultimately deny access to the copper loops that CLECs were using to serve mass market customers, *id.* ¶ 277. In the overbuild situations, then, it ruled that the ILEC must either keep the existing copper loop connected after deploying FTTH, or else provide CLECs with unbundled access to the narrowband capabilities of the replacement FTTH loop. *Id.* ¶¶ 277, 281-84.

Although not contesting the *concept* that large expected revenue can offset scale economies, the CLECs do object to the Commission's decision that CLECs are not impaired by lack of unbundled access to FTTH. They argue that the Commission ignored two critical considerations. First, they point out that the FCC made a national finding that CLECs are impaired without unbundled access to enterprise market high-capacity DS3 loops (which are made from the same fiber as mass market FTTH loops), finding that "a single DS3 loop, generally, can not provide a sufficient revenue opportunity" to overcome the entry barriers to deployment.

Order ¶ 320. This, the CLECs say, contradicts the Commission's conclusion that "the substantial revenue opportunities posed by FTTH deployment help ameliorate many of the entry barriers presented by the costs and scale economies." *Id.* ¶ 274. Second, they argue that ILECs enjoy significant "first mover" advantages due to their existing customer base, rights-of-way, and their existing networks' substantial excess fiber capacity ("dark fiber") that ILECs can readily use for network extensions.

While the CLECs' objections are convincing in many respects, they are ultimately unavailing. Even if the CLECs are impaired with respect to FTTH deployment (a point we do not decide), the § 706 considerations that we upheld as legitimate in the hybrid loop case are enough to justify the Commission's decision not to unbundle FTTH. Although the Commission based its refusal to unbundle on a finding of no impairment, it made clear that its decision was "inform[ed]" by § 706. Order ¶ 278. In particular, it noted that "removing incumbent LEC unbundling obligations on FTTH loops will promote their deployment of the network infrastructure necessary to provide broadband services to the mass market." *Id.* ¶ 278; *see* also *id.* ¶¶ 272, 290 & n. 837.

We find that these considerations are sufficient to justify the Commission's decision not to require FTTH unbundling, even if CLECs are to some extent "impaired" in their ability to enter certain segments of the FTTH broadband market. This conclusion is buttressed by the evidence in the record that FTTH deployment is still very limited, Order ¶ 274, that both the costs and potential benefits of deployment are high, *id.*, and, at least in some contexts, ILECs and CLECs face similar entry barriers, Order ¶¶ 240, 275 & n.808, ¶ 276. An unbundling requirement under these circumstances seems likely to delay infrastructure investment, with CLECs tempted to wait for ILECs to deploy FTTH and ILECs fearful that CLEC access would undermine the investments' potential

return. Absence of unbundling, by contrast, will give all parties an incentive to take a shot at this potentially lucrative market.

3. *Line sharing*

In *USTA I*, 290 F.3d at 428-29, we vacated the Commission's decision to provide CLECs with unbundled access to the high frequency portion of copper loops to provide broadband DSL services, primarily because the Commission had failed to consider the relevance of intermodal competition in the broadband market. On remand, the Commission decided to reverse its earlier position and eliminated this unbundling mandate. The Commission explained its change of heart as follows.

First, the FCC rejected its prior finding that lack of separate access to the high frequency portion would cause impairment. The earlier impairment finding had been based on a notion that broadband revenues would not justify the cost of the whole loop. But now, applying its new decision to focus on *all* the potential revenues from the full functionality of a loop (voice, data, video, and other services), the Commission believes that these revenues would offset the costs associated with purchasing the entire loop. Order ¶ 258. Additionally, the Commission reasons that CLECs interested only in broadband could obtain broadband frequencies from other CLECs through line-splitting, in which one CLEC provides voice service on the low frequency portion of the loop and the other provides DSL on the high frequency portion. Thus, after taking both costs and revenues into account, the FCC decided that eliminating mandatory line sharing would not impair CLECs' ability to provide broadband service. *Id.* ¶ 259.

The Commission also observed that the difficulties of cost allocation for different portions of a single loop had led most states to price the high frequency portion of the loop at

approximately zero. This distorted competitive incentives since CLECs that purchased only the high frequency portion had an irrational cost advantage over both ILECs and CLECs that purchased the whole loop to offer a range of services. Order ¶ 260. The anomalous price differential also skewed CLECs' incentives toward providing only broadband service instead of bundled voice and DSL, discouraged innovative arrangements between voice CLECs and data CLECs, and discouraged product differentiation between ILEC and CLEC offerings. *Id.* ¶ 261. Thus the FCC found the results of mandatory line sharing to be contrary to the Act's goal of encouraging vigorous competition in all local telecommunications markets. *Id.*

Finally, following our mandate in *USTA I*, the Commission noted the substantial intermodal competition from cable companies, which provide nearly 60% of all high-speed lines. Order ¶ 262 & nn.777-78. Although noting that intermodal competition was not "dispositive" in the impairment analysis, the Commission found that it lessened any competitive benefits associated with line sharing. *Id.* ¶ 263. Taking this into account, along with the negative impact of unbundling on competitive incentives, it found that "the costs of unbundling the [high frequency portion of the loop] outweigh the benefits. . . ." *Id.*

As with FTTH, we find that even if the CLECs are right that there is some impairment with respect to the elimination of mandatory line sharing, the Commission reasonably found that other considerations outweighed any impairment. And again we note the ambiguous state of the record on the price-constraining effect of CLEC DSL service. We read the Commission as concluding that, at least in the future, line sharing is not essential to maintain robust competition in this market, a conclusion based on permissible considerations and supported by evidence in the record. With respect to the skewed incentives from zero pricing of the high frequency

portion, it is of course true that alternative cost allocations could have reduced the skew, but any alternative allocation of costs would itself have had some inescapable degree of arbitrariness.

Summary. We therefore uphold the Commission's rules concerning hybrid loops, FTTH, and line sharing on the grounds that the decision not to unbundle these elements was reasonable, even in the face of some CLEC impairment, in light of evidence that unbundling would skew investment incentives in undesirable ways and that intermodal competition from cable ensures the persistence of substantial competition in broadband.

B. *Exclusion of "Entrance Facilities"*

Entrance facilities are dedicated transmission facilities that connect ILEC and CLEC locations. Before the Order, the Commission had defined "dedicated transport facilities" as including entrance facilities. But in the Order it concluded that this definition was "overly broad," Order ¶ 365, and found that "a more reasonable and narrowly-tailored definition of the dedicated transport network element includes only those transmission facilities *within* an incumbent LEC's transport network, that is, the transmission facilities between incumbent LEC switches," *id.* ¶ 366. Thus it held, as a matter of statutory interpretation, that entrance facilities were not "network elements" subject to the statutory unbundling requirements of § 251(c)(3), *id.*, and accordingly required no impairment analysis, *id.* ¶ 367 n. 1119. As this is an issue of statutory construction, we review under the *Chevron* standard.

The CLEC petitioners object that the Commission's interpretation is flatly inconsistent with the text of the Act. In particular, the CLECs point out that § 153(29) of the Act defines "network element" as "a facility of equipment used in the provision of a telecommunications service," and

that entrance facilities clearly fall within that definition. Also, the CLEC petitioners continue, the Commission itself, in this Order, addressed the question whether "network element" included only facilities "*actually used by the incumbent LEC* in the provision of a telecommunications service" or also included facilities "*capable of being used* by a requesting carrier in the provision of a telecommunications service regardless of whether the incumbent LEC is actually using the network element to provide a telecommunications service," and expressly adopted the latter definition. Order ¶ 59.

While the Commission's reasoning appears to have little or no footing in the statutory definition, we find the record too obscure to make any final ruling. The CLECs helpfully provide a diagram of various telecommunications network facilities, in which entrance facilities appear as completely stand-alone items linking a CLEC switch with an ILEC office. CLEC Reply Br. at 3. But no party offers an explanation as to why ILECs rather than CLECs construct these facilities. If (as appears) they *exist* exclusively for the convenience of the CLECs, it seems anomalous that CLECs do not themselves provide them, presumably doing so at the costs associated with "the most efficient telecommunications technology currently available," 47 CFR § 51.505(b)(1), i.e., the TELRIC standard. The Commission hints at this consideration in observing that its ruling encourages CLECs to "incorporate those costs within their control into their network deployment strategies." Order ¶ 367. Thus, although the Commission's ruling superficially violates the statutory language, we simply remand the matter for further consideration. If entrance facilities are correctly classified as "network elements," an analysis of impairment would presumably follow.

C. *Unbundling of Enterprise Switches*

The Commission determined, on a nationwide basis, that CLECs are not impaired by lack of unbundled access to switching for the enterprise market at DS1 capacity and above. Order ¶¶ 451-53. Though observing that the record showed no impairment on a national basis in the absence of unbundling, *id.* ¶ 454, and indeed did "not contain evidence identifying any particular markets where competitive carriers would be impaired," *id.* ¶ 455, the Commission went on to note that "a geographically specific analysis could possibly demonstrate that competitive carriers are impaired without access to unbundled incumbent LEC local circuit switching for DS1 enterprise customers in a particular market," *id.* ¶ 454. It therefore permitted state commissions to petition the Commission to waive the "no impairment" finding in particular markets. *Id.* ¶¶ 455-58. The operative passages direct the state commissions to "examine" certain issues, and "consider [certain] evidence," and to make "finding[s]." It is obscure what weight the Commission intended to give these findings.

CLEC petitioners argue that the 90-day time limit on this petition procedure is arbitrary and capricious, given that in the mass market switching context the Order gave states nine months to collect and analyze market data. In what appears to be a throwaway sentence, the CLECs say the harm inflicted by this supposed error is "compounded" by the fact that the 90-day state proceedings are voluntary rather than mandatory (i.e., at the option of the state commissions), and that the impairment issue cannot be revisited absent changed circumstances. Order ¶ 455.

Since we have invalidated the FCC's subdelegation scheme with respect to mass market switches, a challenge based on the inconsistency between the nine-month period for mass market determinations and the 90-day period for enterprise market determinations is moot as a practical matter (though

not in the strict jurisdictional sense). Cf. *Belton v. Washington Metro. Area Transit Auth.*, 20 F.3d 1197, 1203 (D.C.Cir.1994). And in any event, we agree with the FCC that the market data states are to analyze under the enterprise switching provisions are significantly different from the data they were supposed to evaluate in the mass market switching context.

Apart from the argument regarding the inconsistency of time limits, the CLECs' argument boils down to a claim that the no impairment finding for enterprise switches (1) is overbroad; and (2) lacks sufficient "safety valve" procedures to cure this overbreadth. But the CLECs do not contradict the Commission's observation about the absence of evidence of impairment either nationwide or in specific markets. Thus, in contrast to the mass market switching context, where the evidence indicated the presence of many markets where CLECs suffered no impairment in the absence of unbundling, here there is no showing of any *need* for a safety valve, except insofar as one may infer a need from the Commission's creation of one (which may in fact have been only an excess of caution).

The CLECs make a rather underdeveloped argument that the vice of the alleged time-limit anomaly is "compounded" by the state proceedings being "voluntary rather than mandatory," and that enterprise switching cannot be reinstated after the 90-day period without changed circumstances. CLEC Br. at 40 (citing Order ¶ 455). But these claims seem ancillary to the now-irrelevant time-limit theory, and without a showing of a need for a safety valve, we see no occasion to reach them.

Finally, we note that our holding regarding unlawful subdelegation of FCC authority to state commissions does not control the limited state commission role contemplated in the portion of the Order dealing with enterprise switching. In this context, state commissions are allowed merely to petition the

FCC for a waiver of the unbundling order; the FCC has not granted the states authority to make final decisions on such matters as the existence of impairment. Because no party has challenged the limited state role in the enterprise switching context we have no occasion to rule on whether the role contemplated for the states here is legally problematic.

D. *Unbundling of Call-Related Databases and Signaling Systems*

Call-related databases are used in signaling networks for billing or for transmission, routing, and other telecommunications services. These databases include, for example, ones that provide name identification for caller ID service and ones that contain information on calling cards. Order ¶ 549. When CLECs have unbundled access to ILEC mass market switches, they also have access to the databases that the signaling network permits carriers to access. *Id.* ¶ 551. Where CLECs provide their own switches, however, they don't automatically have access to the needed databases, and they must either self-provision or purchase databases from the ILEC or a third party. *Id.*

The Commission determined that CLECs are not impaired without unbundled access to ILEC databases (other than the 911 database) because of the abundance of alternative providers. Order ¶¶ 551-57. The CLECs object, arguing that the only reason alternatives to ILEC databases exist is that the Commission had previously required ILECs to provide unbundled access to their databases (removing any competitive incentive for the ILECs to withhold the databases from third parties). But the CLECs point to nothing in the record demonstrating that this is so. Even if they did, we doubt that this alone would support a finding of impairment. As it stands, CLECs evidently have adequate access to call-related databases. If subsequent developments alter this situation, affected parties may petition the Commission to amend its rule.

E. *Unbundling of Shared Transport Facilities*

The FCC found CLECs that lease ILEC mass market switches are impaired without unbundled access to so-called "shared transport"—transmission facilities shared by more than one carrier, including the ILEC, running between end office switches, between end office switches and tandem switches, and between tandem switches within the ILEC's network. Order ¶¶ 533-34. But the FCC also concluded that, "because switching and shared transport are inextricably linked, if incumbent LECs are no longer obligated to unbundle switching, they should no longer be obligated to unbundle shared transport." *Id.* ¶ 534. In effect, it found that CLECs are entitled to unbundled shared transport only in cases where mass market switching has also been unbundled. *Id.* The CLECs object to this condition for unbundled shared transport, saying that they are "impaired" without access to shared transport between local tandem switches when they "transit" traffic—that is, when they transport traffic that originates on their network to other carriers' networks. The Commission in fact recognized the claim, saying that it proposed to address the issue in a pending rulemaking on intercarrier compensation. *Id.* ¶ 534 n. 1640.

Although the FCC failed to resolve an impairment question pressed by the CLECs in this Order, the Commission "need not address all problems 'in one fell swoop.'" *U.S. Cellular Corp. v. FCC*, 254 F.3d 78, 86 (D.C.Cir.2001) (quoting *Nat'l Ass'n of Broadcasters v. FCC*, 740 F.2d 1190, 1207 (D.C.Cir.1984)). The FCC generally has broad discretion to control the disposition of its caseload, and to defer consideration of particular issues to future proceedings when it thinks that doing so would be conducive to the efficient dispatch of business and the ends of justice. *See GTE Service Corp. v. FCC*, 782 F.2d 263, 273-74 (D.C.Cir.1986) (citing *Nader v. FCC*, 520 F.2d 182, 195 (D.C.Cir.1975) and *Cellular Mobile Sys. of Penn., Inc. v. FCC*, 782 F.2d 182, 197

(D.C.Cir.1985)). So long as the FCC's decision to postpone consideration of the transiting issue doesn't result in unreasonable delay or impose substantial hardship on the CLECs—which hasn't been shown here—the Commission's choice to organize its rulemaking docket in this way is lawful.

F. *Section 271 Pricing and Combination Rules*

Section 271 of the Act sets conditions for Bell operating companies (the "BOCs") to enter the interLATA long distance market. These conditions include a "competitive checklist," § 271(c)(2)(B), specifying fourteen conditions that a requesting BOC must satisfy before it may provide interLATA service. Checklist item two requires BOCs to provide "[n]ondiscriminatory access to network elements in accordance with the requirements of sections 251(c)(3) and 251(d)(1)," § 271(c)(2)(B)(ii), while checklist items four, five, six, and ten require the BOC to provide unbundled access to, respectively, local loops, local transport, local switching, and call-related databases, §§ 271(c)(2)(B)(iv)-(vi),(x). The FCC reasonably concluded that checklist items four, five, six and ten imposed unbundling requirements for those elements independent of the unbundling requirements imposed by §§ 251-52. In other words, even in the absence of impairment, BOCs must unbundle local loops, local transport, local switching, and call-related databases in order to enter the interLATA market. Order ¶¶ 653-55.

But the FCC also found that the BOCs' unbundling obligations under the independent checklist items differed in some important respects from those under §§ 251-52. Two such differences are salient here. First, the Commission determined that TELRIC pricing was not appropriate in the absence of impairment; for elements for which unbundling was required only under § 271, the ruling criterion is the §§ 201-02 standard that rates must not be unjust, unreasonable, or unreasonably discriminatory. Order ¶¶ 656-64. Second, the Commission decided that, in contrast to ILEC

obligations under § 251, the independent § 271 unbundling obligations didn't include a duty to combine network elements.

The CLEC petitioners object to both of these differences, arguing that the independent § 271 unbundling provisions incorporate all the requirements imposed by §§ 251-52, including pricing and combination. Because this is an issue of statutory construction, we review under *Chevron* and defer to the Commission unless Congress has spoken to the precise question at issue (*Chevron* step one) or the Commission's interpretation is unreasonable (*Chevron* step two).

With regard to pricing, the CLECs have no serious argument that the text of the statute clearly demonstrates that the § 251 pricing rules apply to unbundling pursuant to § 271 checklist items four, five, six, and ten. The CLECs contend that checklist item two specifies that the § 252(d)(1) pricing rules apply to all unbundled "network elements," but checklist item two says no such thing. Rather, checklist item two by its terms requires only "[n]ondiscriminatory access to network elements in accordance with the requirements of sections 251(c)(3) and 252(d)(1)"—it says nothing suggesting that the requirements of those sections also apply to the independent unbundling requirements imposed by the other items on the § 271 checklist. The CLECs also claim that it was unreasonable for the Commission to apply a different pricing standard under § 271, but we see nothing unreasonable in the Commission's decision to confine TELRIC pricing to instances where it has found impairment. *See* generally Order ¶¶ 657-64.

As to combinations, the CLECs argue that the Supreme Court decisions in *AT&T* and *Verizon* establish that the nondiscrimination provision in § 251(n)(3), not its reference to "combin[ation]," provides the basis for the rules that ILECs may not separate already-combined network elements before turning them over to competitors, and that ILECs must

combine unbundled network elements when requested to do so by CLECs. *See* CLEC Br. at 42 (citing *AT&T*, 525 U.S. at 394, 119 S.Ct. at 737, and *Verizon*, 535 U.S. at 537, 122 S.Ct. at 1686).

CLEC reliance on *AT&T* and *Verizon* is misplaced for two reasons. First, as we've already held with regard to pricing, § 271 checklist items four, five, six, and ten do not incorporate any of the specific requirements of § 251(c)(3), including the nondiscrimination prohibition specific to that section. Second, neither *AT&T* nor *Verizon* holds that the § 251(c)(3) nondiscrimination requirement *mandates* the combination rules the FCC promulgated under that section; rather, those cases found the nondiscrimination language in § 251(c)(3) ambiguous and deferred to the agency's reading of it. *AT&T*, 525 U.S. at 394-95, 119 S.Ct. at 737; *Verizon*, 535 U.S. at 531-38, 122 S.Ct. at 1683. These holdings don't necessarily establish that a different rule would be unreasonable. Cf. *Rust v. Sullivan*, 500 U.S. 173, 186-87, 111 S.Ct. 1759, 114 L.Ed.2d 233 (1991).

We agree with the Commission that none of the requirements of § 251(c)(3) applies to items four, five, six and ten on the § 271 competitive checklist. Of course, the independent unbundling under § 271 is presumably governed by the *general* nondiscrimination requirement of § 202. But as the only challenge the CLECs have presented to the FCC's § 271 combination rules is grounded in an erroneous claim of a cross-application of § 251, we do not pass on whether the § 271 combination rules satisfy the § 202 nondiscrimination requirement.

IV. *Unbundling of Enhanced Extended Links ("EELs")*

Enhanced extended links ("EELs") are high-capacity loop/transport combinations that run directly between an end user (usually a large business customer) and an IXC/CLEC

office. *Supplemental Order Clarification*, 15 FCC Rcd 9587, 9593 (2000), ¶ 10 n.36. EELs can be used to provide local exchange services, but they can also be used to originate and terminate long-distance calls. IXC providers have traditionally purchased these services from ILECs for long distance purposes as a special access service, i.e., under the ILEC's tariff rather than at TELRIC rates.

In its first Order implementing the 1996 Act, the FCC did not impose any limits on the telecommunications services that a CLEC could provide with the UNEs to which it was entitled access. Order ¶ 134 & n.446 (citing Third Report and Order, 15 FCC Rcd at 3911-12 ¶ 484 and First Report and Order, 11 FCC Rcd at 15671-72 ¶ 356). But in 1999 the FCC modified this principle with respect to EELs, and issued (as an interim measure) a supplemental order that limited access to EELs as UNEs to those CLECs that would use unbundled EELs to provide "a significant amount of local exchange service." *Supplemental Order*, 15 FCC Rcd 1760, 1760 ¶ 2. The FCC subsequently clarified and refined this principle, adopting three "safe harbors" that required CLECs to certify sufficient local traffic percentages in order to qualify for unbundled access to EELs, *Supplemental Order Clarification*, 15 FCC Rcd 9587, 9598-60 ¶ 22, and restricting "commingling" by CLECs of EELs and tariffed special access services used for interoffice transmission, *id.* at 9602 ¶ 28. We upheld these rules—which the FCC characterized as "interim restrictions"—in *Competitive Telecommunications Ass'n v. FCC*, 309 F.3d 8 (D.C.Cir.2002) ("*CompTel*").

In the Order under review, the Commission revised its approach to EELs. First, the Commission generalized the principle underlying its earlier EELs rulings by interpreting the unbundling obligations of § 251(c)(3) to apply only to "qualifying services," defined as "those telecommunications services that competitors provide in direct competition with the incumbent LECs' core services." Order ¶ 139. The FCC

also decided that, once a CLEC obtained access to a UNE for a qualifying service, the CLEC could use that UNE to provide additional non-qualifying services. Order ¶ 143. Under these principles, CLECs are entitled to unbundled EELs only if they use these facilities for local exchange service (which counts as a qualifying service), but not for use exclusively for non-qualifying long distance service. Order ¶¶ 591, 595.

The Commission also changed its strategy for enforcing this basic principle and for preventing "gaming" by carriers that, while not bona fide providers of local service, might seek to take advantage of the low (TELRIC) price of unbundled EELs. It abandoned the "safe harbor" approach, agreeing with the CLECs that this regime had proved intrusive, unworkable, and susceptible to abuse by ILECs. Order ¶ 596 & n.1831, ¶ 614. It also lifted the prohibition on "commingling." *Id.* ¶¶ 579-84. In place of the old restrictions, the Commission established new "eligibility criteria" as prerequisites for a competitor to enjoy the access entitlement of a bona fide provider of a qualifying service. *Id.* ¶¶ 591-611. Each applicant would have to show, first, that it had a state certification to provide local voice service and, second, that at least one local number was assigned to each circuit to be acquired as a UNE. *Id.* ¶¶ 597, 601-02. In addition, the Commission imposed a variety of technical requirements aimed at preventing firms from gaming the system. *Id.* ¶¶ 597, 603-11.

While the Commission admitted that none of the antigaming requirements by itself would prevent gaming, it concluded that they were "*collectively* sufficient to restrict the availability of these UNE combinations to legitimate providers of local voice service." Order ¶ 600 (emphasis in original). It justified this conclusion on the logic that "the burdens and inefficiencies for a provider to meet these criteria for nonqualifying service would deter a carrier of non-qualifying service from re-designing its operations to subvert

our rules." *Id.* The Commission also allowed CLECs that met the eligibility criteria, but that currently purchased EELs from ILECs as special access services at wholesale rates (i.e., not TELRIC), to "convert" these wholesale services to UNEs. Order ¶ 586. The CLECs object both to the concept of distinguishing between qualifying and non-qualifying service, and to the eligibility criteria used to implement the distinction.

A. *The Qualifying Service/Non-Qualifying Service Distinction*

The CLECs object to the FCC's decision that long distance is not a "qualifying service," claiming that this conclusion is foreclosed by §§ 251(c)(3) and 251(d)(2)(B) of the Act. Long distance services, including the origination and termination functions performed by EELs, are clearly "telecommunications services," and § 251(d)(2) directs the Commission to provide unbundled access to elements where the lack of such an element "would impair the ability of the telecommunications carrier seeking access to provide the services it seeks to offer." (The Commission assumes, as we believe it must, that the reference to "services" in § 251(d)(2) is meant to refer to the "telecommunications services" covered by § 251(c)(3). Order ¶ 138). The CLECs therefore argue that the FCC cannot arbitrarily exclude them from this impairment analysis.

The Commission asserts that "section 251(d)(2)'s reference to the 'services that [the carrier] seeks to offer' is ambiguous as to the question of which services we should analyze in the context of our impairment analysis." Order ¶ 137 (alteration in original). Having thus "conclude[d] that the language of section 251(d)(2) is ambiguous concerning the scope of the impairment inquiry," Order ¶ 138, the FCC looked to the history and purposes of the Act and concluded that "a reasonable interpretation of the statute" would restrict the impairment inquiry to those services offered in direct

competition with ILEC core services such as local voice and data services, *id.* ¶ 139.

In *CompTel* we agreed with the Commission that § 251(d)(2) was ambiguous on the question whether the FCC could make impairment decisions on a service-by-service basis. 309 F.3d at 12. That is, we considered a situation where an element could be used to provide services A and B, and a carrier requested unbundling for both. We held that the Commission acted reasonably in disaggregating the *impairment* issue, and in ordering unbundling only with respect to the service for which it found impairment. 309 F.3d at 12-13 (service-by-service impairment analysis permissible); 14 (impairment finding made by FCC as to local service but not as to long distance).

Here the Commission asserts an entirely different sort of statutory ambiguity, namely, whether long distance services are "services" at all and therefore require the Commission, on request, to perform an impairment analysis. We are not persuaded by the Commission's claim that the ambiguity regarding the permissibility of service-by-service impairment determinations extends to whether long distance services (or other telecommunications services that do not compete directly with "core" ILEC services) are "services" within the meaning of § 251(d)(2) in the first place. Even under the deferential *Chevron* standard of review, an agency cannot, absent strong structural or contextual evidence, exclude from coverage certain items that clearly fall within the plain meaning of a statutory term. The argument that long distance services are not "telecommunications services" has no support.

The Commission does suggest that the "impairment" requirement is closely linked to natural monopoly conditions that prevail only with respect to the core ILEC services that the Commission defined as "qualifying services." FCC Br. at 77 (citing *USTA I*, 290 F.3d at 427). But that argument

addresses impairment, not the definition of "services." We therefore remand those sections of the Order (¶¶ 132-53) resting the exclusion of "non-qualifying" services on the Commission's reading of the phrase "telecommunications services" in § 251(d)(2)(B).

This does not, of course, necessarily invalidate the Commission's effort to prevent the use of EELs for long distance service. The CLECs have pointed to no evidence suggesting that they are impaired with respect to the provision of long distance services, and in *CompTel* we emphatically held that the Act did not bar a service-by-service analysis of impairment. 309 F.3d at 12-14. The CLECs do not deny that they have been able to purchase use of EELs as "special access." As we noted with respect to wireless carriers' UNE demands, competitors cannot generally be said to be impaired by having to purchase special access services from ILECs, rather than leasing the necessary facilities at UNE rates, where robust competition in the relevant markets belies any suggestion that the lack of unbundling makes entry uneconomic.

On remand, therefore, the Commission will presumably turn to the issue of impairment. Because it may well find none with reference to long distance service, we now turn to the eligibility criteria.

B. *The EEL Eligibility Criteria*

Both the CLECs and the ILECs object to the FCC's eligibility criteria. The CLECs say they are too stringent and are over-inclusive insofar as they preclude access to EELs used to provide services for which CLECs are impaired. The ILECs claim they are too lax and are under-inclusive insofar as they fail to prevent CLECs from using unbundled EELs exclusively for long distance services.

We think that the Commission's eligibility criteria, though imperfect, reflect a reasonable effort to establish an

administrable system that balances two legitimate but conflicting goals: the prevention of "gaming" by CLECs seeking to offer services for which they are not impaired, and the preservation of unbundled access for CLECs seeking to offer services for which they are impaired. We accord considerable deference to such administrative determinations, *see WorldCom, Inc. v. FCC*, 238 F.3d 449, 459 (D.C.Cir.2001); *Home Box Office, Inc. v. FCC*, 567 F.2d 9, 60 (D.C.Cir.1977), and find that the proxies the FCC used, though imperfect (as the Commission itself candidly admits, Order ¶ 600), are neither inconsistent with the Act nor arbitrary and capricious. The Commission also satisfactorily explained both the problems with the regime previously in place (which the ILECs thought should be retained), Order ¶ 614, and with the CLECs' proposed alternatives, *id.* ¶¶ 615-19.

The ILECs make an independent attack on the Commission's decision to allow "conversions" of wholesale special access purchases to UNEs. As we discussed in the section on wireless carriers, the presence of robust competition in a market where CLECs use critical ILEC facilities by purchasing special access at wholesale rates, i.e., under § 251(c)(4), precludes a finding that the CLECs are "impaired" by lack of access to the element under § 251(c)(3). We realize that this might create anomalies, as CLECs hitherto relying on special access might be barred from access to EELs as unbundled elements, while a similarly situated CLEC that had just entered the market would not be barred. On the other hand, if history showed that lack of access to EELs had not impaired CLECs in the past, that would be evidence that similarly situated firms would be equally unimpaired going forward. Because we have already determined that we must remand to the Commission, given the invalidity of the line it drew between qualifying and non-qualifying services, the Commission can consider and resolve any potential anomaly on remand.

V. *Miscellaneous*

There remain two loose ends, attacks on the Order by the National Association of State Utility Consumers Advocates ("NASUCA") and by a group of state petitioners. We find that NASUCA lacks standing and that the state petitioners' claim is unripe.

A. *NASUCA's Standing*

NASUCA is a non-profit association of offices, each of which has been designated by its respective state governments to represent the interests of utility consumers in regulatory and judicial proceedings. We agree with the Commission that NASUCA has failed to establish standing pursuant to the requirements of *Sierra Club v. EPA*, 292 F.3d 895, 899-901 (D.C.Cir.2002), though for different reasons than those advanced by the Commission.

Under *Sierra Club*, "a petitioner whose standing is not selfevident should establish its standing by the submission of its arguments and any affidavits or other evidence appurtenant thereto at the first appropriate point in the review proceeding." 292 F.3d at 900. A petitioner's standing is self-evident only if "no evidence outside the administrative record is necessary for the court to be sure of it." *Id.* at 900. Contrary to the Commission's assertions, we believe that no evidence outside the administrative record is necessary to explain how (on NASUCA's view of the merits) the Order injures the consumers that NASUCA claims to represent. *See NASUCA ex parte letter* (Feb. 13, 2002) at 2-3. On the theories advanced by NASUCA, consumers would enjoy a superior price/quality trade-off in telephone service if the Commission accepted its analysis. But it is not at all self-evident from the record that NASUCA meets the associational standing criteria established in *Hunt v. Washington State Apple Advertising Commission*, 432 U.S. 333, 344-45, 97 S.Ct. 2434, 2441, 53 L.Ed.2d 383 (1977), for entities that are not voluntary

membership organizations. *See also Fund Democracy, LLC v. SEC*, 278 F.3d 21, 25-26 (D.C.Cir.2002); *Am. Legal Found. v. FCC*, 808 F.2d 84, 89-90 (D.C.Cir.1987). Although utility consumer interests are clearly affected by the Order, nothing in the administrative record or NASUCA's opening brief establishes that NASUCA is qualified to represent those interests in federal court. We therefore conclude that NASUCA lacks standing and do not reach the merits of its claims.

B. *Ripeness of the State Preemption Claims*

The state petitioners argue that the Order improperly preempts state unbundling regulations that exist independent of the Commission's federal unbundling regulations enacted pursuant to § 251. Specifically, the state petitioners point to ¶ 195 of the Order, which allows "[p]arties that believe that a particular state unbundling obligation is inconsistent with the limits of section 251(d)(3)(B) and (C)" to seek a declaratory ruling from the Commission, and further predicts that state unbundling requirements for elements that the FCC has determined need not be unbundled under § 251(d)(2) are "unlikely" to be found consistent with the Act.

The state petitioners' challenge to the preemptive scope of the Order is not ripe. The general prediction voiced in ¶ 195 does not constitute final agency action, as the Commission has not taken any view on any attempted state unbundling order. Nor does the states' claim present a purely legal question, as they acknowledge that Commission regulations will lawfully preempt in *some* circumstances. *See Alascom, Inc. v. FCC*, 727 F.2d 1212, 1218-20 (D.C.Cir.1984); *see also Time Warner Entertainment Co. v. FCC*, 56 F.3d 151, 193-96 (D.C.Cir.1995). Besides, the state petitioners have not—and probably could not—identify any substantial hardship that they would suffer by deferring judicial review of the preemption issues until the FCC actually issues a ruling

that a specific state unbundling requirement is preempted. We therefore hold the challenge unripe.

VI. *CONCLUSION*

To summarize: We vacate the Commission's subdelegation to state commissions of decision-making authority over impairment determinations, which in the context of this Order applies to the subdelegation scheme established for mass market switching and certain dedicated transport elements (DS1, DS3, and dark fiber). We also vacate and remand the Commission's nationwide impairment determinations with respect to these elements.

We vacate the Commission's decision not to take into account availability of tariffed special access services when conducting the impairment analysis, and we therefore vacate and remand the decision that wireless carriers are impaired without unbundled access to ILEC dedicated transport.

We vacate the Commission's distinction between qualifying and non-qualifying services, and remand (but do not vacate) the decision that competing carriers are not entitled to unbundled EELs for provision of long distance exchange service.

We remand the Commission's decision to exclude entrance facilities from the definition of "network element" for further development of the record to allow proper judicial review.

The petitions for review are otherwise denied, except for NASUCA's petition, which is dismissed for want of standing, and the state commissions' (and that part of the ILEC petitions relating to compensation for modification of elements), which are dismissed as unripe. The ILECs' mandamus petitions are dismissed as moot.

As to the portions of the Order that we vacate, we temporarily stay the vacatur (i.e., delay issue of the mandate) until no later than the later of (1) the denial of any petition for

rehearing or rehearing en banc or (2) 60 days from today's date. This deadline is appropriate in light of the Commission's failure, after eight years, to develop lawful unbundling rules, and its apparent unwillingness to adhere to prior judicial rulings.

So ordered.

APPENDIX B

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers	)	CC Docket No. 01-338
Implementation of the Local Competition Provisions of the Telecommunications Act of 1996	)	CC Docket No. 96-98
Deployment of Wireline Services Offering Advanced Telecommunications Capability	)	CC Docket No. 98-147

REPORT AND ORDER AND ORDER ON REMAND AND FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: February 20, 2003
Released: August 21, 2003

Comment Date:	*30 days after Federal Register publication of this Notice*
Comment Reply Date:	*60 days after Federal Register publication of this Notice*

By the Commission: Chairman Powell and Commissioner Abernathy approving in part, dissenting in part and issuing separate statements; Commissioners Copps and Adelstein approving in part, concurring in part, dissenting in part and

issuing separate statements; Commissioner Martin issuing a separate statement.

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APPENDIX B: FINAL RULES

I. INTRODUCTION

1. Seven years ago, Congress enacted the Telecommunications Act of 1996 (1996 Act) for the benefit of the American consumer.[1] This watershed legislation was partially designed to remove the decades-old system of legal monopoly in the local exchange and open that market to competition. The 1996 Act did so by establishing broad interconnection, resale and network access requirements, designed to facilitate multiple modes of entry into the market by intermodal and intramodal service providers. The 1996 Act also sought to reduce the need for regulation in the presence of competition and provide for universal service mechanisms in order to foster the deployment of advanced telecommunications capabilities to all Americans.

2. This Commission and our colleagues in state commissions around the country have devoted enormous amounts of time and resources to implement the Act's market-opening requirements, and the industry has devoted equally large amounts of time and resources to take advantage of the new business opportunities made available by the 1996

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[1] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56. The 1996 Act amended the Communications Act of 1934, 47 U.S.C. § 151 *et seq.* We refer to these Acts collectively as the "Communications Act" or the "Act."

Act. Few, if any, other requirements of the 1996 Act have attracted so much regulatory attention, industry effort, or litigation, however, as the requirement under section 251(c)(3) that incumbent local exchange carriers (incumbent LECs) make elements of their networks available on an unbundled basis to new entrants at cost-based rates. Every aspect and application of this extraordinary vehicle for opening local exchange markets has been the focus of extensive debate and litigation. Indeed, this Commission has been told twice, once by the Supreme Court and once by the D.C. Circuit, that it had failed to implement unbundling in a reasonable manner because it did not adopt appropriate principles for limiting its application.

3. Direction from the courts, our own experience, and the experience of the telecommunications industry over the last seven years have caused us to reevaluate the Commission's approach to these obligations in light of the Act's goals of opening local exchange markets to competition, fostering the deployment of advanced services, and reducing regulation. Although we recognize that Congress intended to create a competitive landscape through resale, interconnection and facilities-based provision, and a combination of these modes of entry, in practice, we have come to recognize more clearly the difficulties and limitations inherent in competition based on the shared use of infrastructure through network unbundling. While unbundling can serve to bring competition to markets faster than it might otherwise develop, we are very aware that excessive network unbundling requirements tend to undermine the incentives of both incumbent LECs and new entrants to invest in new facilities and deploy new technology. The effect of unbundling on investment incentives is particularly critical in the area of broadband deployment, since incumbent LECs are unlikely to make the enormous investment required if their competitors can share in the benefits of these facilities without participating in the risk inherent in such large scale capital

investment. At the same time, continued unbundling for the network elements provided over current facilities appears to be necessary in many areas under *section 251 of the Act*, especially with respect to mass market customers.

4. This Order takes a balanced approach to these issues. We eliminate most unbundling requirements for broadband, making it easier for companies to invest in new equipment and deploy the high-speed services that consumers desire. We have also made new decisions concerning the unbundling of other network elements that result in substantial changes to existing requirements, including a more granular analysis of unbundling requirements by the states when appropriate.

5. This Order thus achieves three primary goals. First, this Order continues the Commission's implementation and enforcement of the Act's market-opening requirements by applying the experience we have gained implementing the Act. Second, it applies unbundling as Congress intended: with a recognition of the market barriers faced by new entrants as well as the societal costs of unbundling. In doing so, this Order resolves numerous questions about unbundling left open by years of litigation and industry conflicts, and opens a new chapter in the history of the Act's unbundling requirements. Third, this Order establishes a regulatory foundation that seeks to ensure that investment in telecommunications infrastructure will generate substantial, long-term benefits for all consumers.[2] The framework set forth in this Order recognizes that this competition is taking place on an intermodal basis—between wireline providers and providers of services on other platforms such as cable and

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[2] The 1996 Act was announced as "[a]n Act [t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." Preamble, Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996) (Preamble to the 1996 Act).

wireless—and on an intramodal basis among wireline providers with different business and operational plans.

6. The path to the rules and policies we set forth in this Order has been neither straight nor easy. Legal challenges, a depressed telecommunications sector, and technical and operational obstacles have been features of the competitive landscape to a far greater extent than could have been reasonably predicted in 1996. On the other hand, the increasing presence of cable and wireless-based telephony services as well as the advent of broadband services and other new telecommunications and information services has already worked changes in the industry to a far greater extent than could have been reasonably predicted in 1996. In the past, we have stated that "the 1996 Act set the stage for a new competitive paradigm in which carriers in previously segregated markets are able to compete in a dynamic and integrated telecommunications market that promises lower prices and more innovative services to consumers."[3] We believe that the rules and policies we adopt today allow us to continue to strive for that goal and are carefully tailored to reflect today's environment, striking an appropriate balance between increasing infrastructure investment and innovation, and fostering sustainable competition from both intermodal and intramodal service providers in the local telecommunications markets. Accordingly, we believe that the certainty that we bring today will help stabilize the telecommunications industry, yield renewed investment in telecommunications networks, and increase sustainable

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[3] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696, 3699, para. 2 (1999) (*UNE Remand Order*), *reversed and remanded in part sub. nom. United States Telecom Ass'n v. FCC*, 290 F.3d 415 (D.C. Cir. 2002) (*USTA*), *cert. denied sub nom. WorldCom, Inc. v. United States Telecom Ass'n*, 123 S.Ct 1571 (2003 Mem.) (*cert. denied* after adoption of this Order, but before release).

competition in all telecommunications markets for the benefit of American consumers.

II. EXECUTIVE SUMMARY

7. The executive summary is as follows:

- **Principles of Unbundling.** The standards for unbundling are based on principles drawn from the Supreme Court and D.C. Circuit opinions concerning the impairment standard; guidance provided by the language, structure, purposes and history of the 1996 Act; and lessons from the economic and legal literature on topics potentially related to the ambiguous impair standard.

- **Network Element.** The Order reaffirms our previous interpretation of the statutory definition of the term "network element," set forth in section 153(29) of the Act, as requiring incumbent LECs to make available to requesting carriers network elements that are capable of being used in the provision of a telecommunications service. We specifically decline to limit the definition of a "network element" to facilities and equipment actually used in the provision of a telecommunications service.

- **Impair Standard.** A requesting carrier is impaired when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic. Thus, we interpret the "impair" standard as less demanding than the "necessary" standard. At the same time, we interpret the "impair" standard as requiring us to make specific, affirmative findings that elements should or should not be unbundled.

    - *Types of Barriers to Entry.* The Order describes the barriers that we consider relevant to the

impairment analysis and examines whether unbundling can address the impairment caused by these barriers. In our application of the impairment standard to individual elements, we ask whether the sum of these barriers is likely to make entry uneconomic, taking into account any countervailing advantages that a requesting carrier may have. We specifically find that we should consider the following barriers to entry in determining whether impairment exists. We will examine the disparities caused by all the factors discussed here to determine whether, as a whole, they are likely to make entry into a market uneconomic.

- *Scale Economies.* Scale economies, particularly when combined with sunk costs and first-mover advantages, can pose a powerful barrier to entry. The greater the extent and size of the scale economies throughout the range of potential demand, the higher the barrier they pose. Scale economies that pertain just to the beginning stages of entry, however, might not be an appropriate factor in an unbundling analysis.

- *Sunk Costs.* Sunk costs, particularly when combined with scale economies, can pose a formidable barrier to entry. Sunk costs increase a new entrant's cost of failure. Potential new entrants may also fear that an incumbent LEC that has incurred substantial sunk costs will drop prices to protect its investment in the face of new entry. In addition, sunk costs can give significant first-mover advantages to the incumbent LEC, which has incurred these

costs over many years and has already had the opportunity to recoup many of these costs through its rates.

- *First-Mover Advantages.* First-mover advantages often create an absolute cost disadvantage for new entrants, which if large enough, can be a barrier to entry. First-mover advantages can also contribute to the effects of economies of scale and high sunk costs.
- *Absolute Cost Advantages.* Absolute cost advantages, if of sufficient size, can deter entry or make it impossible for entrants to provide service in an economic fashion.
- *Barriers Within the Control of the Incumbent LEC.* We also consider barriers to entry that are solely or primarily within the control of the incumbent LEC since eliminating them or mitigating their effects is within the control of the incumbent LEC.

- *Evidence of Impairment.* Actual marketplace evidence is the most persuasive and useful evidence. In particular, we are interested in evidence concerning whether new entrants are providing retail services in the relevant market using non-incumbent LEC facilities. We also give weight to the deployment of intermodal technologies. In addition, we will give consideration to cost studies and modeling. We reaffirm our prior conclusion in the UNE Remand Order to afford little weight in determining whether impairment exists to evidence that requesting carriers are using incumbent LEC tariffed services to provide competing retail services.

- *Granularity of Impairment Analysis.* We perform a granular analysis of impairment by taking into account considerations related to customer classes, geography, and services. In discussing specific network elements, we also consider the types and capacity of the facilities involved.

- *Implicit Support Flows.* We explain how our impairment standard addresses the existence of implicit support flows in a manner that is responsive to the concerns raised by the D.C. Circuit's USTA decision. At the same time, we conclude that the statute is best interpreted as giving the Commission broad discretion concerning consideration of implicit support flows in the impairment analysis.

- **The "Necessary" Standard.** We retain the interpretation of the "necessary" standard set forth in the UNE Remand Order.

- **"At a Minimum."** Although we have not required the unbundling of any network elements in this Order in the absence of impairment, we find that this provision permits us to consider, when appropriate, "other" factors closely tied to the purposes of the statute in reaching an unbundling determination. In this Order, however, we use this authority sparingly to inform our consideration of unbundling when some level of impairment may exist, but unbundling appears likely to undermine important goals of the 1996 Act such as the deployment of advanced telecommunications capabilities.

- **Role of the States.** The record before us and the D.C. Circuit's emphasis in USTA on granularity in making unbundling determinations both lead us to conclude that asking the states to take on some fact

finding responsibilities would be the most reasonable way to implement the statutory goals for certain network elements. We find that giving the state this role is most appropriate where, in our judgment, the record before us does not contain sufficiently granular information and the states are better positioned than we are to gather and assess the necessary information.

Unbundling Requirements for Individual Network Elements

- **Mass Market Loops.** Incumbent LECs must offer unbundled access to stand-alone copper loops and subloops for the provision of narrowband and broadband services. Subject to a grandfather provision and a transition period, incumbent LECs do not have to provide unbundled access to the high frequency portion of their loops. Incumbent LECs must offer unbundled access to the Time Division Multiplexing (TDM) features, functions, and capabilities of their hybrid copper/fiber loops. Similarly, only in fiber loop overbuild situations where the incumbent LEC elects to retire existing copper loops must the incumbent LEC offer unbundled access to those fiber loops for narrowband service only. Incumbent LECs do not have to offer unbundled access to newly deployed or "greenfield" fiber loops or to the packet-switching features, functions, and capabilities of their hybrid loops.

- **Enterprise Market Loops.** Incumbent LECs are no longer required to unbundle OCn loops. Incumbent LECs must offer unbundled access to dark fiber loops, DS3 loops (limited to 2 loops per requesting carrier per customer location) and DS1 loops except at specified customer locations where states have found no impairment pursuant to Commission-

delegated authority to conduct a more granular review based on Commission-defined triggers measuring the availability or feasibility of alternatives to incumbent LEC unbundled loops at such customer location.

- **Subloops.** Incumbent LECs must offer unbundled access to subloops necessary to access wiring at or near a multiunit customer premises, including the Inside Wire Subloop, i.e., all incumbent LEC loop plant between the minimum point of entry (MPOE) at a multiunit premises and the point of demarcation, regardless of the capacity level or type of loop the requesting carrier will provision to its customer. Unbundled access must be provided at any technically feasible accessible terminal at or near the multiunit premises, including but not limited to, a pole or pedestal, a network interface device (NID), the MPOE, the single point of interconnection (SPOI) or a feeder distribution interface. A requesting carrier accessing a subloop on the incumbent LEC's network side of the NID obtains the NID functionality as part of that subloop. Upon notification by a requesting carrier that interconnection is required through SPOI, an incumbent LEC is required to provide a SPOI at multiunit premises where the incumbent LEC owns, controls or leases the wiring at such premises.

- **Network Interface Devices (NID).** Incumbent LECs must offer unbundled access to the NID on a stand alone basis to requesting carriers. The NID is defined as any means of interconnecting the incumbent LEC's loop distribution plant to wiring at a customer premises location. An incumbent LEC shall permit a requesting carrier to connect its loop facilities through the incumbent LEC's NID.

- **Dedicated Transport.** We redefine the dedicated transport network element as those transmission facilities that connect incumbent LEC switches or wire centers. The Commission conducted its impairment analysis of dedicated transport by capacity level. Specifically, we find that requesting carriers are not impaired without access to unbundled OCn level transport. Further, we find that requesting carriers are impaired without access to dark fiber, DS3, and DS1 transport, each independently subject to a granular route-specific review by the states to identify available wholesale facilities. Dark fiber and DS3 transport also each subject to a granular route-specific review by the states to identify where transport facilities can be deployed.

- **Switching for Enterprise Market (defined as DS1 and above).** We find, on a national basis, that competitive LECs are not impaired without unbundled local circuit switching when serving the enterprise market. We recognize that a more geographically specific record may reveal such impairment in particular markets and thus allow states to rebut this national finding based on certain operational and economic criteria.

- **Switching for Mass Market (defined as DS0).** We find, on a national basis, that competing carriers are impaired without unbundled local circuit switching when serving the mass market due to operational and economic barriers associated with the incumbent LEC hot cut process. We require state commissions to approve an incumbent LEC batch hot cut process, or make a detailed finding that such a process is not necessary. We recognize that a more geographically specific record may identify particular markets where there is no impairment and thus ask states to

apply Commission-defined triggers measuring existing switch deployment serving this market and, if necessary, consider operational and economic barriers to switch deployment to serve this market. If states conclude that there is impairment in a particular market, they must consider whether the impairment can be cured by requiring unbundled switching on a rolling basis, rather than making unbundled switching available for an indefinite period of time.

- **Shared Transport.** We find that carriers are impaired without shared transport only to the extent that carriers are impaired without access to unbundled switching.

- **Packet Switching.** Incumbent LECs are not required to unbundle packet switching, including routers and Digital Subscriber Line Access Multiplexers (DSLAMs), as a stand-alone network element. The Order eliminates the current limited requirement for unbundling of packet switching.

- **Signaling Networks.** Incumbent LECs are only required to offer unbundled access to their signaling network when a carrier is purchasing unbundled switching. The signaling network element, when available, includes, but is not limited to, signaling links and signaling transfer points (STPs).

- **Call-Related Databases.** When a requesting carrier purchases unbundled access to the incumbent LEC's switching, the incumbent LEC must also offer unbundled access to their call-related databases and, if the incumbent LEC does not provide customized routing, to operator service and directory assistance (OS/DA) services. When a carrier utilizes its own switches, with the exception of 911 and E911 databases, incumbent LECs are not required to offer

unbundled access to call-related databases, including, but not limited to, the Line Information database (LIDB), Toll Free Calling database, Number Portability database, Calling Name (CNAM) database, Operator Services/Directory Assistance databases, and the Advanced Intelligent Network (AIN) database.

- **OSS Functions.** Incumbent LECs must offer unbundled access to their operations support systems (OSS) for qualifying services. OSS consists of pre-ordering, ordering, provisioning, maintenance and repair, and billing functions supported by an incumbent LEC's databases and information. The OSS element also includes access to all loop qualification information contained in any of the incumbent LEC's databases or other records.

Unbundling Requirements for Individual Network Elements

- **Combinations of Network Elements.** Competitive LECs may order new combinations of unbundled network elements (UNEs), including the loop-transport combination (enhanced extended link, or EEL), to the extent that the requested network elements are unbundled. A competitive LEC may convert special access services to a UNE or UNE combination. All requests for newly-provisioned EELs and for conversions of special access circuits to EELs are subject to the service eligibility criteria. Competitive LECs are permitted to commingle UNEs and UNE combinations with other wholesale services, such as tariffed interstate special access services. Incumbent LECs are not required to provide "ratcheting," which is a pricing mechanism that involves billing a single circuit at multiple rates and would result in providing discounted UNEs.

- **Service Eligibility.** We conclude that where a requesting carrier satisfies the following three categories of criteria, it is a bona fide provider of qualifying services and thus is entitled to order high-capacity EELs. First, we find that each requesting carrier must have a state certification of authority to provide local voice service. Second, to demonstrate that it actually provides a local voice service to the customer over every DS1 circuit, we find that the requesting carrier must have at least one local number assigned to each circuit and must provide 911 or E911 capability to each circuit. Third, we find that requesting carriers must certify to meeting the following additional circuit-specific architectural safeguards to qualify for the high-capacity circuit:
    - each circuit must terminate into a collocation governed by section 251(c)(6) at an incumbent LEC central office within the same LATA as the customer premises;
    - each circuit must be served by an interconnection trunk in the same LATA as the customer premises served by the EEL for the meaningful exchange of local traffic;
    - for every 24 DS1 EELs or the equivalent, the requesting carrier must maintain at least one active DS1 local service interconnection trunk; and
    - each circuit must be served by a Class 5 switch or other switch capable of providing local voice traffic.
- **Certification and Auditing.** A requesting carrier must certify in writing that it satisfies the qualifying service eligibility criteria for each high-capacity EEL circuit. As part of their limited right to audit compliance with these criteria, incumbent LECs may

obtain and pay for an independent auditor to audit, on an annual basis, compliance with them.

- **Modification of Existing Network.** Incumbent LECs are required to make routine network modifications to UNEs used by requesting carriers where the requested facility has already been constructed. These routine modifications include deploying multiplexers to existing loop facilities and undertaking the other activities that incumbent LECs make for their own retail customers. We also require incumbent LECs to condition loops for the provision of digital subscriber line (xDSL) services. We do not require incumbent LECs to trench new cable or otherwise to construct transmission facilities so that requesting carriers can access them as UNEs at cost-based rates, but we clarify that the incumbent LEC's unbundling obligation includes all transmission facilities deployed in its network.

Remaining Issues

- **Section 271 Issues.** The requirements of section 271(c)(2)(B) establish an independent obligation for BOCs to provide access to loops, switching, transport, and signaling, under checklist items 4-6 and 10, regardless of any unbundling analysis under section 251. Where a checklist item is no longer subject to section 251 unbundling, section 252(d)(1) does not operate as the pricing standard. Rather, the pricing of such items is governed by the "just and reasonable" standard established under sections 201 and 202.

- **Clarification of TELRIC Rules.** The Order clarifies two key components of its TELRIC pricing rules to ensure that UNE prices send appropriate economic signals to incumbent LECs and competitive LECs. First, the Order clarifies that the risk-adjusted cost of

capital used in calculating UNE prices should reflect the risks associated with a competitive market. The Order also reiterates the Commission's finding from the Local Competition Order that the cost of capital may be different for different UNEs. Second, the Order declines to mandate the use of any particular set of asset lives for depreciation, but clarifies that the use of an accelerated depreciation mechanism may present a more accurate method of calculating economic depreciation. In addition to these clarifications, the Order notes that the Commission plans to open a proceeding to consider issues related to its TELRIC pricing rules.

- **Fresh Look.** The Commission will retain the determination made in the UNE Remand Order that it will not permit competitive LECs to avoid any liability under contractual early termination clauses in the event that it converts a special access circuit to a UNE. Although "fresh look" has occurred in the past, this rare exercise of Commission discretion is not appropriate here because it would be unfair to both incumbent LECs and other competitors, disruptive to the market place, and ultimately inconsistent with the public interest.

- **Transition Period.** The Commission will not intervene in the contract modification process to establish a specific transition period for each of the rules established in this Order. Instead, as contemplated in the Act, individual carriers will have the opportunity to negotiate specific terms and conditions necessary to translate our rules into the commercial environment, and to resolve disputes over any new contract language arising from differing interpretations of our rules. Except where noted, the Commission will not establish specific transition periods for each of the rules established in

this Order but will, instead, rely on the timing of the contract modification process. As contemplated in the Act, individual carriers will have the opportunity to negotiate specific terms and conditions necessary to translate the rules into the commercial environment, and to resolve disputes over any new contract language arising from differing interpretations of our rules.

- **Periodic Review of National Unbundling Rules.** The Commission will evaluate these rules consistent with the biennial review mechanism established in section 11 of the Act. These reviews, however, will not be performed de novo but according to the standards of the biennial review process.

- **Duty To Negotiate in Good Faith.** We amend our duty-to-negotiate rule, section 51.301(c)(8)(ii), to make the rule conform to the text of the Local Competition Order.

- **Further Notice of Proposed Rulemaking.** We open a further notice of proposed rulemaking to seek comment on whether we should modify the Commission's interpretation of section 252(i). The Commission's so-called pick-and-choose rule permits requesting carriers to opt into individual portions of interconnection agreements without accepting all the terms and conditions of such agreements. We tentatively conclude that a modified approach would better serve the goals embodied in section 252(i), and sections 251-252 generally, by promoting more meaningful commercial negotiations between incumbent LECs and competitive LECs. Specifically, we tentatively conclude that if an incumbent LEC obtains state approval of a statement of generally available terms and conditions (SGAT) pursuant to section 252(f), the incumbent LEC and competitive LECs could

> negotiate customized agreements that third parties could opt into entirely or not at all. Finally, unless and until an SGAT is approved in a particular state, the existing pick-and-choose rule would remain in effect in that state.

III. BACKGROUND AND LEGAL HISTORY

8. This Order represents, in large part, a fresh examination of the issues presented in implementing the unbundling requirements of section 251 of the Act. Our consideration of these issues, however, takes place within the context of prior Commission orders and judicial decisions examining those orders. An understanding of the Commission's prior efforts to address these issues as well as the relevant court guidance is critical to ensuring a successful consideration of these issues in this Order.

9. *Statutory Requirements*. The Communications Act requires that incumbent LECs provide UNEs to other telecommunications carriers.[4] In particular, section 251(c)(3) of the Act states that incumbent LECs have a duty to

> provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory in accordance with the terms and

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[4] Section 153(44) of the Act defines a telecommunications carrier as "any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in section 226)." 47 U.S.C. § 153(44). Section 153(44) also states that "[a] telecommunications carrier shall be treated as a common carrier under this Act only to the extent that it is engaged in providing telecommunications services, except that the Commission shall determine whether the provision of fixed and mobile satellite service shall be treated as common carriage." *Id.*

> conditions of the agreement and the requirements of this section and section 252.[5]

This section requires that incumbent LECs provide such network elements "in a manner that allows requesting carriers to combine such elements in order to provide such telecommunications service."[6] The Act defines the term "network element" as "a facility or equipment used in the provision of a telecommunications service," specifying that "[s]uch term also includes features, functions, and capabilities that are provided by means of such facility or equipment, including subscriber numbers, databases, signaling systems, and information sufficient for billing and collection or used in the transmission, routing, or other provisions of a telecommunications service."[7]

10. The Act also establishes a general federal standard for use in determining the UNEs that must be made available by the incumbent LECs pursuant to section 251. Section 251(d)(2) provides that

> [i]n determining what network elements should be made available for purposes of subsection (c)(3), the Commission shall consider, at a minimum, whether— (A) access to such network elements as are proprietary in nature is necessary; and (B) the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.[8]

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[5] 47 U.S.C. § 251(c)(3).

[6] *Id.* Section 153(46) defines telecommunications service as "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available to the public, regardless of the facilities used." *Id.* § 153(46).

[7] *Id.* § 153(29).

[8] *Id.* § 251(d)(2).

The 1996 Act also preserves a state role in addressing unbundling issues. First, section 252 authorizes states to review and to arbitrate interconnection agreements for compliance with the requirements of sections 251 and 252 and this Commission's implementing rules.[9] Second, section 251(d)(3) also preserves states' independent state law authority to address unbundling issues to the extent that the exercise of that authority poses no conflict with federal law. That section provides that

> [i]n prescribing and enforcing regulations to implement the requirements of this section, the Commission shall not preclude the enforcement of any regulation, order, or policy of a State commission that—(A) establishes access and interconnection obligations of local exchange carriers; (B) is consistent with the requirements of this section; and (C) does not substantially prevent implementation of the requirements of this section and the purposes of this part.[10]

11. In addition, the statute establishes standards to govern the pricing of UNEs in sections 251 and 252. For UNEs, section 251(c)(3) provides that elements shall be made available "on rates, terms, and conditions that are just, reasonable, and nondiscriminatory."[11] Section 252 provides that:

> [d]eterminations by a State Commission of the . . . just and reasonable rate for network elements for purposes of subsection [251](c)(3) . . .—(A) shall be—(i) based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the . . .

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[9] *See generally id.* § 252.

[10] *Id.* § 251(d)(3). The states may exercise this state law authority in the course of reviewing interconnection agreements under section 252. *See id.* § 252(e)(3).

[11] *Id.* § 251(c)(3).

network element . . . , and (ii) nondiscriminatory, and (B) may include a reasonable profit.[12]

The statute also establishes a resale entry vehicle separate from the availability of UNEs. Section 251(c)(4) provides that incumbent LECs have "[t]he duty . . . to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers."[13] Because section 251(c)(4) applies only to retail telecommunications services that the incumbent LEC provides to subscribers, some incumbent LEC services, such as wholesale-only services and information services, are not available at a resale discount to competing carriers. Indeed, as the Commission has discussed in section 271 orders, some incumbent LECs' retail "high-speed Internet access service[s]" have not been affirmatively determined to fall within section 251(c)(4).[14]

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12 *Id.* § 252(d)(1).

13 *Id.* § 251(c)(4).

14 *Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance Pursuant to Section 271 of the Telecommunications Act of 1996 To Provide In-Region, InterLATA Services in Arkansas and Missouri*, CC Docket No. 01-194, Memorandum Opinion and Order, 16 FCC Rcd 20719, 20758-61, paras. 79-84 (2001); *see also Application by BellSouth Corp., BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc., for Authorization To Provide In-Region, InterLATA Services in Florida and Tennessee*, WC Docket No. 02-307, Memorandum Opinion and Order, 17 FCC Rcd 25828, 25922, para. 178 (2002) (*BellSouth FL/TN 271 Order*); *Application by SBC Communications Inc., Pacific Bell Telephone Company, and Southwestern Bell Communications Services Inc., for Authorization To Provide In-Region, InterLATA Services in California*, WC Docket No. 02-306, Memorandum Opinion and Order, 17 FCC Rcd 25650, 25714, para. 113 (2002); *Joint Application by BellSouth Corp., BellSouth Telecommunications, Inc. and BellSouth Long Distance, Inc. for Provision of In-Region, InterLATA Services in Georgia and Louisiana*, CC Docket No. 02-35, Memorandum Opinion and Order, 17 FCC Rcd

12. Local Competition Order. The Commission first addressed the unbundling obligations of incumbent LECs in the Local Competition Order, which, among other things, adopted rules designed to implement the requirements of the section 251.[15] The Commission interpreted the statutory "necessary" and "impair" standards governing the incumbent LECs' unbundling obligations very broadly. The Commission stated that for purposes of determining whether access to a proprietary network element was "necessary" under section 251(d)(2), the term "[n]ecessary means . . . that an element is a prerequisite for competition."[16] The Commission also found that "[t]he term 'impair' means 'to make or cause to become worse; diminish in value.'"[17] The Commission added that the "impairment" standard requires "the Commission . . . to consider whether the failure of an incumbent to provide access to a network element would decrease the quality, or increase the financial or administrative cost of the service a requesting carrier seeks to

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9018, 9174-76, paras. 274-77 (2002) (*BellSouth Georgia/Louisiana Order*).

[15] *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket Nos. 96-98, 95-185, First Report and Order, 11 FCC Rcd 15499, 15616-775 (1996) (*Local Competition Order*), *aff'd in part and vacated in part sub nom. Competitive Telecommunications Ass'n v. FCC*, 117 F.3d 1068 (8th Cir. 1997) and *Iowa Utils. Bd. v. FCC*, 120 F.3d 753 (8th Cir. 1997), *aff'd in part and remanded, AT&T v. Iowa Utils. Bd.*, 525 U.S. 366 (1999) (*Iowa Utils. Bd.*), *on remand, Iowa Utils. Bd. v. FCC*, 219 F.3d 744 (8th Cir. 2000), *reversed in part sub nom. Verizon Communications Inc. v. FCC*, 535 U.S. 467 (2002) (*Verizon*), Order on Reconsideration, 11 FCC Rcd 13042 (1996), Second Order on Reconsideration, 11 FCC Rcd 19738 (1996), Third Order on Reconsideration and Further Notice of Proposed Rulemaking, 12 FCC Rcd 12460 (1997), further recons. pending.

[16] *Local Competition Order*, 11 FCC Rcd at 15641, para. 282.

[17] *Id.* at 15643, para. 285.

offer, compared with providing that service over other unbundled elements in the incumbent LEC's network."[18]

13. The Commission also adopted a minimum set of UNEs, requiring that incumbent LECs provide unbundled access to local loops,[19] network interface devices,[20] local and tandem switching capability,[21] interoffice transmission facilities,[22] signaling and call-related databases,[23] operations support

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[18] *Id.*

[19] In the *Local Competition Order*, the Commission defined the local loop network element "as a transmission facility between a distribution frame, or its equivalent, in an incumbent LEC central office, and the network interface device at the customer premises." *Id.* at 15691, para. 380.

[20] The Commission defined the network interface device network element as a "cross-connect device used to connect loop facilities to inside wiring." *Id.* at 15697, para. 392 n.852.

[21] The Commission defined the local switching network element to include "line-side and trunk-side facilities plus the features, functions and capabilities of the switch." *Id.* at 15706, para. 412.

[22] The Commission stated that the interoffice transmission facilities network element included "unbundled access to shared transmission facilities between end offices and the tandem switch" as well as "unbundled access to dedicated transmission facilities between LEC central offices or between such offices and those of competing carriers." *Id.* at 15718, para. 440.

[23] The Commission stated that "purchase of unbundled elements of the SS7 [signaling] network gives the competitive provider the right to use those elements for signaling between its switches (including unbundled switching elements), between its switches and the incumbent LEC's switches, and between its switches and those third party networks with which the incumbent LEC's SS7 network is interconnected." *Id.* at 15740, para. 483. The Commission required that incumbent LECs make access to their call-related databases available on an unbundled basis for the purpose of switch query and database response through the SS7 network. The Commission stated that "[c]all-related databases are those SS7 databases used for billing and collection or used in the transmission,

systems functions,[24] and operator services and directory assistance facilities.[25] The Commission noted that the state commissions were free to prescribe additional elements.[26] The Commission also found that the incumbent LECs were obligated to combine UNEs upon request.[27]

14. In addition, the Commission established the Total Element Long Run Incremental Cost (TELRIC) methodology, a forward-looking, long-run, incremental cost methodology, for the states to use in setting actual rates for UNEs.[28] The Commission found that "the price of a network element should include the forward-looking costs that can be attributed directly to the provision of services using that element, which includes a reasonable return on investment (i.e., "profit"), plus a reasonable share of the forward-looking joint and common costs."[29] The Commission determined that TELRIC-based rates for UNEs should not include embedded or historical costs, opportunity costs or universal service subsidies.[30]

15. Iowa Utilities Board v. FCC. On review in 1997, the Eighth Circuit vacated many of the rules adopted in the Local Competition Order as beyond the Commission's jurisdiction,

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routing or other provision of a telecommunications service." *Id.* at 15741, para. 484 n.1126.

[24] The Commission required that the incumbent LECs make unbundled access to their operations support systems available for pre-ordering, ordering, provisioning, maintenance and repair, and billing. *Id.* at 15766-67, para. 523.

[25] *Id.* at 15771, para. 534.

[26] *Id.* at 15625-26, para. 244.

[27] *Id.*

[28] *Id.* at 15812-72, paras. 618-740.

[29] *Id.* at 15844-56, paras. 673-703.

[30] *Id.* at 15844, para. 673; 15857-69, paras. 704-32.

which it viewed as limited to interstate matters.[31] The court also vacated section 51.315(b) of the Commission's rules, which barred incumbent LECs from separating UNEs before providing them to competitors, on the ground that "unbundled" means "not combined."[32] In addition, the court vacated sections 51.315(c)-(f), which required incumbent LECs to combine elements on behalf of competitive LECs on request, on the ground that section 251(c)(3) does not require incumbent LECs to combine elements on behalf of competitive LECs, but only requires incumbent LECs to provide elements in a manner that permits the competitive LEC to do the actual combining.[33] As to "superior network" issues, the court held that section 251(c)(3) requires "unbundled access only to an incumbent LEC's existing network—not to a yet unbuilt superior one."[34] Specifically, the Eighth Circuit explained that incumbent LECs can be required to modify their facilities "to the extent necessary to accommodate interconnection or access to network elements," but cannot be required "to alter substantially their networks in order to provide superior quality interconnection and unbundled access."[35] Finally, the court upheld the Commission's interpretation of the "necessary" and "impair" standards.[36]

16. AT&T v. Iowa Utilities Board. In 1998, the U.S. Supreme Court reversed the Eighth Circuit's jurisdictional holdings, concluding that the Commission has jurisdiction to implement the local competition provisions of the 1996 Act. The Court, however, vacated the Commission's interpretation

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31 *Iowa Utils. Bd. v. FCC*, 120 F.3d 753.

32 *Id.* at 813.

33 *Id.*

34 *Id.*

35 *Id.* at 813 n.33 (emphasis added).

36 *Id.* at 810-12.

of the "necessary" and "impair" standards in section 251(d)(2).[37] In particular, the Court also faulted the Commission for its failure to consider the availability of alternative sources of network elements.[38] The Court also concluded that "the Commission's assumption that any increase in cost (or decrease in quality) imposed by denial of a network element renders access to that element 'necessary,' and causes the failure to provide that element to 'impair' the entrant's ability to furnish its desired services is simply not in accord with the ordinary and fair meaning of those terms."[39] The Court stated "that the Act requires the FCC to apply some limiting standard, rationally related to the goals of the Act, which it has simply failed to do."[40]

17. In conclusion, the Court stated that "if Congress had wanted to give blanket access to incumbents' networks on a basis as unrestricted as the scheme the Commission has come up with, it would not have included § 251(d)(2) in the statute at all."[41] Instead, "[i]t would simply have said . . . that whatever requested element can be provided must be provided."[42] At the same time, the Court declined to find that section 251(d)(2) incorporates "something akin to the 'essential facilities' doctrine" as argued by the incumbent LECs.[43] The Court found that it need not decide whether the statute requires application of that standard as a matter of law, adding "it may be that some other standard would provide an

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37 *Iowa Utils. Bd.*, 525 U.S. 366.

38 *Id.*

39 *Id.* at 389-90.

40 *Id.* at 388.

41 *Id.* at 390.

42 *Id.*

43 *Id.* at 388.

equivalent or better criterion for the limitation upon network-element availability that the statute has in mind."[44]

18. The Court upheld section 51.315(b) of the Commission's rules, which bars an incumbent LEC from separating network elements that are already combined in the incumbent's network before providing them to a competitor if the competitor asks for them in a combined form. The Commission had explained that the rule prevents incumbent LECs from disconnecting previously connected elements merely to impose additional reconnect charges on requesting carriers. The Court stated that section 251(c)(3) is "ambiguous on whether leased network elements may or must be separated, and the rule the Commission has prescribed is entirely rational, finding its basis in § 251(c)(3)'s nondiscrimination requirement."[45]

19. The Commission's UNE Remand Order. In 1999, in response to the Supreme Court's decision, the Commission re-examined its treatment of the "necessary" and "impair" standards, as well as the list of UNEs that incumbent LECs must provide.[46] In the UNE Remand Order, the Commission adopted narrower requirements for determining the UNEs that incumbent LECs must provide pursuant to the "necessary" and "impair" standards, and modified its list of required UNEs, expanding it in certain respects and narrowing it in others.

20. The Commission found that a proprietary network element is "necessary" under section 251(d)(2)(A) "if, taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third party supplier, lack of access to that element would, as a

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44 *Id.*

45 *Id.* at 395.

46 *UNE Remand Order*, 15 FCC Rcd 3696.

practical, economic, and operational matter, preclude a requesting carrier from providing the services it seeks to offer."[47]

21. The Commission also adopted a new definition of what constitutes "impairment" for purposes of section 251(d)(2)(B). The Commission stated that

> [t]he incumbent LECs' failure to provide access to a non-proprietary network element 'impairs' a requesting carrier . . . if, taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element *materially diminishes* a requesting carrier's ability to provide the services it seeks to offer.[48]

The Commission added that "[i]n order to evaluate whether there are alternatives actually available to the requesting carrier as a practical, economic and operational matter, we look at the totality of the circumstances associated with using an alternative."[49] The Commission thus held that the "'impair' analysis considers the cost, timeliness, quality, ubiquity, and operational issues associated with the use of an alternative."[50]

22. The Commission also stated that it was "interpret[ing] the obligations imposed in section 251(d)(2) within the larger statutory framework of the 1996 Act," consistent with that section's directive to consider "at a minimum" the

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47 *Id.* at 3704 (emphasis in original); *see also id.* at 3720-23, paras. 41-47.

48 *Id.* at 3704-05 (emphasis in original); *see also id.* at 3723-50, paras. 48-116.

49 *Id.* at 3705; *see also id.* at 3730, para. 62.

50 *Id.* at 3705; *see also id.* at 3730-45, paras. 62-100.

"necessary" and "impair" standards.[51] Accordingly, the Commission stated that "in addition to the factors set forth above, we may consider the following factors:"[52] (1) the rapid introduction of competition in all markets—"whether the availability of an unbundled network element is likely to encourage requesting carriers to enter the local market in order to serve the greatest number of consumers as rapidly as possible[;]"[53] (2) promotion of facilities-based competition, investment and innovation—"the extent to which the unbundling obligations we adopt will encourage the development of facilities-based competition by competitive LECs, and innovation and investment by both incumbent LECs and competitive LECs, especially for the provision of advanced services[;]"[54] (3) reduced regulation—"the extent to which we can encourage investment and innovation by reducing regulatory obligations to provide access to network elements, as alternatives to the incumbent LECs' network elements become available in the future[;]"[55] (4) certainty in the market—"how the unbundling obligations . . . can provide the uniformity and predictability that new entrants and fledgling competitors need to develop national and regional business plans[, as well as] . . . whether the rules . . . provide financial markets with reasonable certainty so that carriers can attract the capital they need to execute their business plans to serve the greatest number of consumers[;]"[56] and (5) administrative practicality—"whether the unbundling obligations . . . are administratively practical to apply."[57]

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51 *Id.* at 3705; *see also id.* at 3745-46, paras. 101-02.

52 *Id.* at 3705; *see also id.* at 3746-47, paras. 103-06.

53 *Id.* at 3705; *see also id.* at 3747-48, paras. 107-09.

54 *Id.* at 3705; *see also id.* at 3748-49, paras. 110-12.

55 *Id.* at 3705; *see also id.* at 3749, para. 113.

56 *Id.* at 3705; *see also id.* at 3749-50, paras. 114-15.

57 *Id.* at 3705; *see also id.* at 3750, para. 116.

23. Based on this analysis, the Commission concluded that the following network elements must be unbundled: (1) loops—"including high-capacity lines, xDSL-capable loops, dark fiber, and inside wire owned by the incumbent LEC[;]"[58] (2) subloops—"unbundled access to subloops, or portions of the loop, at any accessible point[;]"[59] (3) NID—"includ[ing] all features, functions and capabilities of the facilities used to connect the loop to premises wiring, regardless of the specific mechanical design[;]"[60] (4) circuit switching—"except for local circuit switching used to serve end users with four or more lines in access density zone 1 in the top 50 Metropolitan Statistical Areas (MSAs), provided that the incumbent LEC provides non-discriminatory, cost-based access to the enhanced extended link throughout zone 1[;]"[61] (5) packet switching—"only in limited circumstances in which the incumbent has placed digital loop carrier systems in the feeder section of the loop or has its Digital Subscriber Line Access Multiplexer (DSLAM) in a remote terminal[;]"[62] (6) interoffice transmission facilities—"unbundled access to dedicated interoffice transmission facilities, or transport, including dark fiber[;]"[63] (7) shared transport—unbundled

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[58] *Id.* at 3706; *see also id.* at 3778-87, paras. 181-201.

[59] *Id.* at 3706; *see also id.* at 3788-800, paras. 202-29.

[60] *Id.* at 3706; *see also id.* at 3800-04, paras. 230-40.

[61] *Id.* at 3707; *see also id.* at 3804-32, paras. 241-99. An enhanced extended link is "a combination of an unbundled loop, multiplexing/concentrating equipment, and dedicated transport." *Id.* at 3707.

[62] *Id.* at 3707; *see also id.* at 3832-40, paras. 300-17.

[63] *Id.* at 3707; *see also id.* at 3840-61, paras. 318-68. The Commission defined dedicated interoffice transmission facilities as "incumbent LEC transmission facilities dedicated to a particular customer or carrier that provide telecommunications between wire centers owned by the incumbent LECs or requesting telecommunications carriers, or

access to shared transport where unbundled local circuit switching is provided;[64] (8) signaling and call-related databases—including, but not limited to "unbundled access to signaling links and signaling transfer points (STPs) in conjunction with unbundled switching, and on a stand-alone basis[,]" as well as unbundled access to call-related databases;[65] and (9) OSS—"consist[ing] of pre-ordering, ordering, provisioning, maintenance and repair, billing functions supported by an incumbent LEC's databases and information[,]" including "access to all loop qualification information contained in any of the incumbent LEC's databases or other records, including information on whether a particular loop is capable of providing advanced services."[66] The Commission stated that in light of the rapid changes in technology and competition, it would reexamine the national list of UNEs in three years, thereby establishing the Triennial Review process reflected in this Order.

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between switches owned by incumbent LECs or requesting telecommunications carriers." *Id.* at 3707.

[64] *Id.* at 3707. The Commission defined shared transport as "transmission facilities shared by more than one carrier, including the incumbent LEC, between end office switches, between end office switches and tandem switches, and between tandem switches in the incumbent LEC's network." *Id.*

[65] *Id.* at 3707-08. The Commission stated that the call-related databases that must be unbundled "include[d], but [were] not limited to, the Line Information database (LIDB), Toll Free Calling database, Number Portability database, Calling Name (CNAM) database, Operator Services/Directory Assistance databases, Advanced Intelligent Network (AIN) databases, and the AIN platform and architecture." *Id.*

[66] *Id.* at 3708. The Commission specifically found that certain other network elements did not need to be unbundled. The elements that need not be unbundled included: (1) operator services and directory assistance (OS/DA)—except in limited circumstances; (2) shared transport—where the incumbent LEC is not required to offer unbundled local circuit switching; and (3) packet switching—except in limited circumstances. *Id.*

24. *Availability of Enhanced Extended Links.* The Commission subsequently modified its *UNE Remand Order* as it related to the use of UNEs to provide exchange access services originating and terminating long distance services.[67] Specifically, the Commission ruled that on an interim basis, pending further Commission action, "interexchange carriers (IXCs) may not convert special access services to combinations of unbundled loops and transport network elements, whether or not the IXCs self-provide entrance facilities (or obtain them from third parties)."[68] The Commission provided that this restriction would not apply "if an IXC uses combinations of unbundled network elements to provide a significant amount of local exchange service, in addition to exchange access service, to a particular customer."[69] The Commission stated that this temporary restriction on the use of EELs was consistent with its finding in the *Local Competition Order* that the Commission "may, where necessary, establish a temporary transitional mechanism to help complete all of the steps toward the pro-competitive goals of the 1996 Act, including the full implementation of a competitively-neutral system to fund universal service and a completed transition to cost-based access charges."[70]

25. The Commission later clarified and extended this temporary restriction on the use of EELs to provide exchange access service.[71] In particular, the Commission "define[d]

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[67] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, Supplemental Order, 15 FCC Rcd 1760 (1999) (*Supplemental Order*).

[68] *Id.* at 1760, para. 2.

[69] *Id.*

[70] *Id.* at 1763, para. 7.

[71] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, Supplemental Order Clarification, 15 FCC Rcd 9587 (2000), *aff'd sub nom. CompTel v.*

more precisely the 'significant amount of local exchange service' that a requesting carrier must provide in order to obtain loop-transport combinations."[72] The Commission specified three different sets of circumstances that would serve as safe harbors for demonstrating that a requesting carrier was providing a significant amount of local exchange service to a particular customer. The Commission stated that "section 251(d)(2) does not compel [the Commission], once [it] determines[s] that any network element meets the 'impair' standard for one market, to grant competitors automatic access to that same network element solely or primarily for use in a different market."[73] The Commission also clarified that "incumbent LECs must allow requesting carriers to self-certify that they are providing a significant amount of local exchange service over combinations of unbundled network elements."[74] In addition, the Commission noted that there was widespread agreement among all interested parties concerning appropriate auditing procedures.[75]

26. *Line Sharing Order*. In the *Line Sharing Order*, the Commission directed incumbent LECs to provide the high-frequency portion of the local loop (HFPL) to requesting telecommunications carriers as a UNE.[76] In reaching this

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FCC, 309 F.3d 3 (D.C. Cir. 2002) (*CompTel*) (*Supplemental Order Clarification*).

[72] *Id.* at 9598, para. 21.

[73] *Id.* at 9595, para. 15.

[74] *Id.* at 9602, para. 29.

[75] *Id.* at 9603-04, para. 31. The Commission also adopted a restriction on the commingling of local exchange and access traffic as an additional means of preventing widespread conversion of special access circuits to UNEs. *Id.* at 9602, para. 28.

[76] *Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket Nos. 98-147, 96-98, Third Report and Order in CC Docket No. 98-

conclusion, the Commission found that "[a]n incumbent LEC's failure to provide such access impairs the ability of a competitive LEC to offer certain forms of xDSL-based services."[77] The Commission stated "[t]he record shows that lack of access would materially raise the cost for competitive LECs to provide advanced services to residential and small business users, delay broad facilities-based market entry and materially limit the scope and quality of competitor service offerings."[78] In order to prevent the degradation of analog voice service, the Commission required that incumbent LECs make the high frequency portion of the loop available only to carriers seeking to provide xDSL-based service that meets certain criteria. The Commission also concluded that "[i]ncumbents are not required to provide unbundled access to the high frequency portion of the loop if they are not currently providing analog voice service to the customer." The Commission also required that incumbent LECs "condition loops to enable requesting carriers to provide acceptable forms of xDSL-based services over the high frequency portion of the loop unless such conditioning would significantly degrade the incumbent's analog voice service."[79]

27. *Iowa Utilities Board v. FCC (Remand Decision).* In 2000, on remand after the Supreme Court's opinion in *AT&T v. Iowa Utilities Board*, the Eighth Circuit reviewed several more aspects of the *Local Competition Order*.[80] The court vacated on the merits the Commission's rule setting out the

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147 and Fourth Report and Order in CC Docket No. 96-98, 14 FCC Rcd 20912 (1999) (*Line Sharing Order*).

[77] *Id.* at 20916. Digital subscriber line technology, commonly referred to as xDSL, permits high speed connections between subscribers and packet switched networks over ordinary copper telephone loops. *Id.* at 20915, para. 3.

[78] *Id.* at 20916, para. 5.

[79] *Id.* at 20917.

[80] *Iowa Utils. Bd. v. FCC*, 219 F.3d 744.

TELRIC pricing methodology because the methodology calls for incumbent LECs to be compensated for the use of their network at charges that reflect what an incumbent's costs would be if it were providing the most efficient technology in the most efficient configuration available using its existing wire center locations. The court reasoned that costs based on this "hypothetical" network did not reflect the "cost . . . of providing the interconnection or network element" as required by section 252(d)(1)(A)(i).[81] The court did, however, agree with the Commission that it was reasonable to interpret "cost" to mean forward-looking cost, rather than historical cost,[82] and that the cost of the element should not include any costs of universal service subsidies.[83] The court also reaffirmed its earlier decision to vacate the Commission's new combinations rules, sections 51.315(c)-(f).[84]

28. *Triennial Review NPRM.* In December 2001, about two years after releasing the *UNE Remand Order*, the Commission adopted and released the *Notice* that began the instant proceeding, the *Triennial Review NPRM*.[85] The *Notice* posed questions regarding almost all aspects of the unbundling regime, including the "necessary" and "impair"

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[81] *Id.* at 750.

[82] *Id.* at 751.

[83] *Id.* at 753. The court also vacated the Commission's resale pricing rule on the ground that section 252(d)(3) requires wholesale rates to reflect those retail costs that the incumbent LEC actually avoids by providing the service at wholesale rather than at retail, not those costs that merely could be avoided. *Id.* at 755.

[84] *Id.* at 759.

[85] *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 01-338, 96-98, 98-147, Notice of Proposed Rulemaking, 16 FCC Rcd 22781 (2001) (*Triennial Review NPRM*).

standards, the "at a minimum" language of section 251(d)(2), whether and how the Commission's previously identified UNEs should be unbundled, and whether the Commission should conduct a more granular impairment analysis.[86] The Commission asked particular questions about crafting unbundling rules that foster facilities investment by both incumbent LECs and new entrants, in particular investment in facilities needed to provide broadband services.[87]

29. *Verizon v. FCC*. In 2002, after the Commission released the *Triennial Review NPRM*, the Supreme Court upheld the TELRIC standard established by the Commission in the *Local Competition Order* and applied by state commissions to set the actual rates for UNEs.[88] In so doing, the Court overturned the decision by the Eighth Circuit concerning the lawfulness of the TELRIC pricing standard. The Court specifically rejected the argument that rates for UNEs must be based on the historic cost incurred by the incumbent LEC in furnishing the specific UNE to be provided as opposed to its value or price in a competitive open market. The Court also affirmed the Commission's decision to base TELRIC costs on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration in light of the existing location of the incumbent's wire centers. In addition, the Court rejected the claim that TELRIC is an unreasonable rate making methodology for UNEs because it does not produce facilities-based competition. The Court stated that it "had no idea whether a different forward-looking pricing scheme would have generated even greater competitive investment than the $55 billion that the entrants claim."[89] The Court,

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[86] *Id.* at 22790, para. 18, 22791, para. 21, 22803-13, paras. 47-70, 22797-802, para. 34-44.

[87] *Id.* at 22793-96, paras. 24-30.

[88] *Verizon*, 535 U.S. 467.

[89] *Verizon*, 535 U.S. at 517.

however, emphasized that "it suffices to say that a regulatory scheme that can boast such substantial competitive capital spending over a 4-year period is not easily described as an unreasonable way to promote competitive investment in facilities."[90]

30. Moreover, the Court eliminated remaining uncertainty regarding the Commission's new combinations requirement by explicitly upholding the Commission's rules requiring that incumbent LECs combine UNEs in certain circumstances even if they are not combined in the incumbent's network. The Court stated these rules "reflect a reasonable reading of the statute, meant to remove practical barriers to competitive entry into local-exchange markets while avoiding serious interference with incumbent network operations."[91]

31. *United States Telecom Association v. FCC.* Eleven days after the Supreme Court's decision in *Verizon,* the D.C. Circuit vacated and remanded for further consideration the portions of the Commission's *UNE Remand Order* that adopted an interpretation of the "impair" standard and established a list of mandatory UNEs, and vacated and remanded as well the Commission's Order requiring that the high-frequency portion of the loop be made available as a UNE.[92] Specifically, it appears that the court reversed rule 51.317(b) (the "impair" standard) and rule 51.319 (specific unbundling requirements).[93] As explained below, other rules related to these topics, such as the rules relating to spectrum

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90 *Id.*

91 *Id.* at 535.

92 *USTA*, 290 F.3d 415.

93 On September 4, 2002, the court stayed the effectiveness of its opinion until January 2, 2003. *See USTA v. FCC*, No. 00-1012, Order (D.C. Cir. Sept. 4, 2002). Then, on December 23, 2002, the court granted the consent motion of the Commission and the Bell Operating Companies to extend the stay through February 20, 2003. *See USTA v. FCC*, Nos. 00-1012, 00-1015, Order (D.C. Cir. Dec. 23, 2002).

management and the rule defining the "necessary" standard, remain in effect.[94]

32. While recognizing "the extraordinary complexity of the Commission's task[,]"[95] the court found the Commission's analysis wanting in a number of respects. At the outset, the court criticized what it characterized as the decision in the *UNE Remand Order* "to adopt a uniform national rule, mandating [an] element's unbundling in every geographic market and customer class, without regard to the state of competitive impairment in any particular market."[96] The court concluded that, under this approach, "UNEs will be available to CLECs in many markets where there is no reasonable basis for thinking that competition is suffering from any impairment of a sort that might have [been] the object of Congress's concern."[97] The court stated that "[o]ne reason for such market-specific variations in competitive impairment is the cross-subsidization often ordered by state regulatory commissions, . . . [which] usually brings about undercharges for some subscribers (usually rural and/or residential) and overcharges for the others (usually urban and/or business)."[98] In particular, the court stated that "[t]he Commission never explicitly addresses by what criteria want of unbundling can be said to impair competition in such markets [where customers are charged below cost] where, given the ILEC's regulatory hobbling, any competition will be wholly artificial."[99] The court added, "[b]ut it is in the other segments of the markets, where presumably ILECs must

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94 *See infra* Parts V.C., the Necessary Standard, and VI.A.4.a.(v), Specific Unbundling Requirements for Mass Market Loops.

95 *USTA*, 290 F.3d at 421.

96 *Id.* at 422.

97 *Id.*

98 *Id.*

99 *Id.*

charge above cost (at least above average costs allocated in conventional regulatory fashion) in order to offset their losses in the subsidized markets, that the gap in the Commission's reasoning is greatest."[100] In particular, the court stated that "the Commission nowhere appears to have considered the advantage CLECs enjoy in being free of any duty to provide underpriced service to rural and/or residential customers and thus of any need to make up the difference elsewhere."[101] The court also concluded that the Commission had failed to adequately explain how a uniform national rule would help to achieve the goals of the Act, including the rapid introduction of competition, promotion of facilities-based competition, investment and innovation, certainty in the market place, administrative practicality and reduced regulation.[102]

33. The court further found that the *UNE Remand Order* improperly "reflect[s] an open-ended notion of what kinds of cost disparity are relevant" for purposes of identifying impairment.[103] In particular, the court stated that "[t]o rely on cost disparities that are universal as between new entrants and incumbents in *any* industry is to invoke a concept too broad, even in support of an *initial* mandate, to be reasonably linked to the purpose of the Act's unbundling provisions."[104] Instead, the court indicated that the Commission must engage in a balancing process, reflecting both the benefits and drawbacks of unbundling, noting that, in his separate opinion in *AT&T v. Iowa Utilities Board*, "Justice Breyer concluded that fulfillment of the Act's purposes . . . called for 'balance'

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100 *Id.*

101 *Id.* at 423.

102 *Id.*

103 *Id.* at 426.

104 *Id.* at 427 (emphasis in original).

between . . . competing concerns."[105] The court of appeals stated that although it did not "intend to suggest that the Act requires use of [the essential facilities] doctrine's criteria[,]"[106] "[a] cost disparity approach that links 'impairment' to universal characteristics, rather than ones linked in (in some degree) to natural monopoly, can hardly be said to strike such a balance."[107] The court emphasized that "cost comparisons of the sort made by the Commission, largely devoid of any interest in whether the cost characteristics of an 'element' render it at all unsuitable for competitive supply, seem unlikely either to achieve the balance called for explicitly by Justice Breyer or implicitly by the Court as a whole."[108] The court also vacated the Commission's *Line Sharing Order*, finding that the Commission had failed to give adequate consideration to existing facilities-based competition in the provision of broadband services, especially by cable systems.[109]

34. *Competitive Telecommunications Association v. FCC.* In 2002, a few months after the D.C. Circuit's decision in *USTA*, the D.C. Circuit upheld the Commission's interim restrictions on the availability of enhanced extended links for use in the provision of exchange access service.[110] The court held that the Commission has authority to restrict the availability of UNEs to particular services for which there has

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[105] *Id.* In this regard, the court stated that "[e]ach unbundling of an element imposes costs of its own, spreading the disincentive to invest in innovation and creating complex issues of managing shared resources[,]" while recognizing that "a broad mandate [for unbundling] can facilitate competition by eliminating the need for separate construction of facilities where such construction would be wasteful." *Id.*

[106] *Id.*

[107] *Id.*

[108] *Id.*

[109] *Id.* at 428-29.

[110] *CompTel*, 309 F.3d at 8.

been a showing that denial of the requested element would impair the competitor's ability to provide the service.[111] The court also found that the Commission had provided a reasonable justification for its restrictions on the use of enhanced extended links for the provision of exchange access service. Moreover, the court went on to state that "it is far from obvious to us that the FCC has the power, without an impairment finding as to non-local services, to require that ILECs provide EELs for such services on an unbundled basis[,]" although it did not rule on this issue since it was not raised by the parties.[112] The court also rejected CompTel's argument that the Commission's safe harbor provisions were arbitrary and capricious.[113]

IV. EVOLUTION OF THE MARKET FOR LOCAL TELECOMMUNICATIONS SERVICES

35. To provide context for this Order's unbundling decisions, we describe some of the major developments in the local telecommunications market, with special emphasis on the introduction of competition through the 1996 Act. This Part provides a brief factual overview of telecommunications markets that sets the stage for the unbundling decisions set forth below.

A. Effects of the Act on Telecommunications and Industry Trends

36. The 1996 Act marked the greatest single change in local telephone regulation since the original Communications Act of 1934. Although a few states had initiated significant market opening programs, the 1996 Act opened the monopoly local exchange market on a nationwide basis and also established procedures for the Bell Operating Companies

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111 *See id.* at 12-14.

112 *Id.* at 14.

113 *See id.* at 17-18.

(BOCs) to enter the interLATA long distance market.[114] Specifically, the 1996 Act expanded existing collocation and interconnection requirements[115] and imposed network access requirements to allow full local service competition through three types of entry: resale, leasing of UNEs and investment in and ownership of full facilities.[116] Various competitive LECs pursued these strategies either singly or in combination. Total service resale requires the least initial capital investment, but is limited to reselling the incumbent LEC products with little opportunity to vary the products other than through improved customer service and bundling additional products with resold local service. Full ownership of facilities, on the other hand, allows the competitive LEC to totally engineer its own network, giving maximum control and flexibility but requiring the most capital investment. Leasing some parts of the network as UNEs, such as unbundled loops, can be accomplished at a lower initial

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[114] *Local Competition Order*, 11 FCC Rcd at 14174, para. 4; 47 U.S.C. § 271. Nineteen states had some local competition rules in place by the time of the 1996 Act. Seven of these states had firms offering competitive switched access service: California, Illinois, Maryland, Massachusetts, Michigan, New York, and Washington.

[115] *See, e.g., Expanded Interconnection with Local Telephone Company Facilities*, CC Docket No. 91-141, First Report and Order, 7 FCC Rcd 7369 (1992) (*Special Access Order*), *vacated in part and remanded, Bell Atlantic*, 24 F.3d 1441 (D.C. Cir. 1994); *First Reconsideration*, 8 FCC Rcd 127 (1993), *vacated in part and remanded, Bell Atlantic Tel. Cos. v. FCC*, 24 F.3d 1441 (D.C. Cir. 1994); *Second Reconsideration*, 8 FCC Rcd 7341 (1993); *Second Report and Order*, 8 FCC Rcd 7374 (1993) (*Switched Transport Order*), *vacated in part and remanded, Bell Atlantic Telephone Cos., v. FCC*, 24 F.3d 1441; *Remand Order*, 9 FCC Rcd 5154 (1994) (*Virtual Collocation Order*), *remanded for consideration of 1996 Act, Pacific Bell v. FCC*, 81 F.3d 1147 (1996).

[116] 47 U.S.C. § 251. Congress recognized that it might be inefficient or impossible for competitive LECs to duplicate the entire incumbent LEC telecommunications network to enter a market and established several modes of possible market entry, including resale and UNEs, as well as full facilities deployment.

capital investment than full facilities ownership and provides greater flexibility to develop services than does resale, but it may result in less network flexibility to add new services than does full facilities ownership.

37. The competitive LEC industry grew rapidly beginning in 1997. This initial expansion was followed by consolidation beginning in 2001. Direct competitive local service was being offered to mass market and enterprise customers. To a smaller degree, some competitive LECs began to provide selected transport services to other competitive LECs on a wholesale basis. One telecommunications trade association has estimated that in 2000 there were about 300 facilities-based competitive LECs, but that by early 2002 that number had contracted to about 70.[117]

38. The competitive LEC industry experienced major difficulty in 2001 and 2002 due to a slowing general economy and major reduction in access to capital. Some trade associations estimate that competitive LEC capital spending of $21.7 billion in 2000 was down to an estimated $10.7 billion for 2002.[118] Although there has been a significant reduction in the number of competitive LECs, the capital assets for those exiting carriers in some cases returned to productive use by other entities. Accordingly, much of this investment has not been lost, but rather shifted to new companies and put back into service.[119]

39. Although precise figures about competitive LEC services are difficult to obtain, parties in this proceeding have

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[117] ALTS, THE STATE OF LOCAL COMPETITION 2002, Annual Report 5 (Apr. 2002) (ALTS 2002 Report).

[118] *Id.* at 11.

[119] *See* ALTS, PROGRESS REPORT ON THE CLEC INDUSTRY (Oct. 17, 2002), <http://www.alts.org/Filings/101702CLECProgressReport.pdf>, for ALTS' detailed analysis of current and projected health of the competitive LEC industry.

provided some estimates.[120] At the end of 2001, competitive LECs had almost 25,000 collocation arrangements with the BOCs, up from less than 5,000 in 1998.[121] Minutes of traffic exchanged had grown from less than 100 billion to almost 500 billion minutes from 1998 through 2001.[122] In the same time period, competitive LEC access lines grew from an estimated 8-9 million to 23-32 million lines.[123] Estimates provided by analysts, BOCs, and trade groups indicate that competitive LEC revenues from local service have risen from $3.5 billion in 1998 to $9.5 billion in 2001.[124] By 2001, competitive LECs had deployed about 1,300 local circuit switches, with potential coverage of over 86 percent of BOC access lines.[125]

40. Incumbent LECs have also entered the competitive LEC market. Some have expanded their existing network into adjacent, usually BOC, territory. Others have established

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[120] The data supplied do not generally distinguish between mass market and enterprise services, but they provide some clues about the state of competition in the mass market.

[121] SBC Comments, Attach. A at I-4.

[122] *Id.* at I-4.

[123] *Id.* at I-5. In mid-2002, competitive LECs reported they provided slightly more than 21 million total access lines, including resale, UNEs and full facilities; competitive LEC-owned facilities comprised about 6.2 million lines. Industry Analysis and Technology Division, Wireline Competition Bureau, *Local Telephone Competition: Status as of June 30, 2002* (Dec. 2002) at Table 3 (*Local Telephone Competition December 2002 Report*).

[124] SBC Comments, Attach. A, UNE Fact Report 2002 at I-13 (BOC UNE Fact Report 2002); ALTS 2002 Report at 9.

[125] BOC UNE Fact Report 2002 at II-1. The record indicates that in 2001, competitive LECs owned 339,501 route miles of fiber. ALTS 2002 Report at 17.

separate competitive entities and operate further afield.[126] In addition to existing telecommunications companies expanding into local service, new companies have been created to address new opportunities.[127] Cable companies have also deployed networks to serve business customers.[128] These are generally not the historic hybrid-fiber-coaxial cable networks providing service to residential customers but newly deployed facilities specifically designed to serve enterprise customers.

41. Competitive LECs' purchase of total service resale has declined from a peak of almost 5.4 million lines in 2000 to below 3.5 million lines by mid-2002.[129] Over the same time period, total access lines served by UNE-Loops (UNE-L) and UNE-P combinations have grown from about 1.5 million to about 11.5 million.[130] UNE-L grew from 1 million to 4

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[126] There are at least 45 competitive LECs with incumbent LEC affiliations. Numbering Resource Utilization/Forecast (NRUF) FCC Form 502, as of December 31, 2001, staff calculation.

[127] For example, Sempra in San Diego and Dominion Telecom in Hartford-New Haven were laying fiber. Utility companies such as Avista, Montana Power, Pacific Enterprises of Southern California, UtiliCorp of Kansas/Missouri and PEPCO entered the telecommunications business. Citizens Utilities, for one, has more than two million access lines in the United States. *See* Telecommunications Industry Association, *2002 Telecommunications Market Review and Forecast*, at 37 (2002) (TIA 2002 Market Review).

[128] In June 2002 cable carriers responded that they provide fewer than 16,000 coaxial cable connections to medium and large businesses; small business and residential services are not separately reported. Industry Analysis and Technology Division, Wireline Competition Bureau, *High Speed Services for Internet Access: Status as of June 30, 2002* (Dec. 2002) calculation using Table 3 and Table 5 (*High Speed Services December 2002 Report*).

[129] *Local Telephone Competition December 2002 Report* at Table 2, Table 4.

[130] The UNE-P consists of a leased combination of the loop, local switching and shared transport UNEs.

million lines. UNE-P lines grew from less than half a million to almost 7.5 million.[131] These UNE-L and UNE-P represent approximately 6.9 percent of BOC access lines.[132] Competitive LECs provide service to about 16-20 percent of all access lines in the BOC territories: 26-33 percent of business access and about 9 percent of residential access lines.[133] Considering all modes of entry, competitive LEC lines probably exceed 10 percent of BOC lines in most states. The BOCs at present serve 87 percent of all incumbent LEC access lines while the "independent" incumbent LECs serve the balance.[134]

42. Fiber transport facilities have also increased in recent years. The BOCs estimate that since 1998, competitive LEC-owned fiber has increased from 100,000 to 184,000 route miles. In addition, wholesale suppliers of fiber continue to

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[131] *Local Telephone Competition December 2002 Report* at Table 4. PACE estimates that UNE-P grew to over ten million lines by the end of 2002. Letter from Genevieve Morelli, Counsel for PACE, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1 (filed Jan. 14, 2003) (PACE Jan. 14, 2003 UNE-P Fact Report).

[132] *Local Telephone Competition December 2002 Report* at Table 4. In mid-2002, about 65% of UNE lines included switching. While competitive LEC end-user lines increased by about 30% from December 2000 to June 2002, UNEs and especially UNE-P have become a higher percentage of competitive LEC lines from 2000 to mid-2002. Considering the PACE estimate of ten million UNE-P lines at the end of 2002, competitive LECs would have 8.2% of BOC lines in UNE-L and UNE-P. PACE Jan. 14, 2003 *Ex Parte* Letter, UNE-P Fact Report Attach. at 1.

[133] BOC UNE Fact Report 2002 at I-7. This figure includes competitive LEC services provided through resale, UNE-P, UNE-L and fully-owned facilities.

[134] Industry Analysis and Technology Division, Wireline Competition Bureau, *Trends in Telephone Service* (May 2002) at Table 8.3 (*Trends in Telephone Service May 2002 Report*).

invest in facilities that are being used by all carriers.[135] Much of this interoffice transport is long-haul intercity, rather than local. For any given city, a competitive LEC may or may not have non-incumbent LEC interoffice transport sufficient to link the various wire centers necessary to offer local service.[136]

B. Markets for Telecommunications Services

43. Some competitive LECs have pursued the medium and large business enterprise markets while others have pursued mass market strategies. As discussed below in detail, the economic characteristics of these markets vary significantly.[137] In this Part, we summarize general observations about the overall development of competition for these customer classes.

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[135] BOC UNE Fact Report 2002 at III-8 to III-14. The route miles deployed and planned are difficult to estimate. ALTS estimates competitive LEC fiber miles at almost 340,000 miles in 2001. ALTS 2002 Report at 17.

[136] Allegiance Comments at 28. Allegiance provisions about 70% of its DS3 interoffice transport through the incumbent LEC. *Id.* ALTS states that competitive fiber is only available in about 15% of all BOC wire centers. ALTS *et al.* Comments at 63. Covad and Mpower state they have competitive fiber alternatives in about one-half of the incumbent LECs central offices where they collocate. Covad Comments at 67-68; Mpower Reply at 13-16; Letter from Ross A. Buntrock, Counsel for Mpower, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 7 (filed Oct. 11, 2002) (Mpower Oct. 11, 2002 *Ex Parte* Letter). Broadview has experienced competitive transport availability in only about 20% of cases. Letter from Rebecca H. Sommi, Vice President, Operations Support, Broadview, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 14 (filed Aug. 2, 2002) (Broadview Aug. 2, 2002 *Ex Parte* Letter); *see also* Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 7-10 (filed Oct. 8, 2002) (AT&T Oct. 8, 2002 *Ex Parte* Letter).

[137] *See infra* Part V.B.2.

1. The Enterprise Market

44. Within the enterprise market for telecommunications services, new entrants began competing with the incumbent LECs in the mid-1980s. Beginning in New York in the mid-1980s, competitive fiber suppliers (competitive access providers or CAPs) began providing competitive exchange access service to larger business customers.[138] The CAPs, in general, provided a specialized service to their customers—connecting incumbent LECs' local wire centers to interexchange carriers' points of presence (POPs) and large enterprise customers directly to interexchange carrier POPs.[139] The CAPs enjoyed some success in this market as they were able to underprice the incumbent LECs' comparable (but regulated) special access services.[140] By 1993, the ten largest CAPs had revenues of $209.6 million from providing competitive access either through fiber or microwave

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[138] By the late 1980s, companies like Teleport Communications Group in New York; Institutional Communications Company in Washington, D.C.; Chicago Fiber Optic/MFS in Chicago, Baltimore and Philadelphia; Kansas City Fiber Net in Kansas City; and other CAPs had begun to develop networks in traditional BOC territories. RICHARD G. TOMLINSON, TELE-REVOLUTION—TELEPHONE COMPETITION AT THE SPEED OF LIGHT 87-88 (2000).

[139] AT&T, MCI and Sprint are the largest interexchange carriers. Industry Analysis and Technology Division, Wireline Competition Bureau, *Statistics of Communications Common Carriers* (Sept. 2002) at Table 1.4 (*Statistics of Communications Common Carriers December 2001 Report*). These interexchange carriers accounted for 83% of reported 1996 long distance carrier revenues. CAPs connected large business customers directly to the interexchange carrier's POP, bypassing the incumbent LEC's switch and thereby avoiding access charges.

[140] In 1999, the Commission established a framework by which incumbent LECs could obtain pricing flexibility in the provisioning of special access services. *See Access Charge Reform*, CC Docket Nos. 96-262, 94-1, 98-157, CCB/CPD File No. 98-63, Fifth Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 14221, 14224-25, paras. 2-3 (1999) (*Pricing Flexibility Order*).

technologies, out of a total of $91 billion in telecommunications revenue nationally.[141] CAPs began to install more infrastructure and expand services where approved by state regulatory authority. By 1995, the CAPs' total revenues had exceeded $1 billion with about one-half from dedicated access and private line service and the balance from local switched service, switched access and data service.[142] Approximately 57 CAPs were providing competitive access services in 1996 and were well positioned when Congress passed the 1996 Act.[143] Interexchange carriers and CAPs quickly entered the newly opened local markets as competitive LECs,[144] and large interexchange carriers began to acquire CAPs to facilitate local market entry.[145]

45. Since 1996, new entrants have captured some of the enterprise market. Competitive LECs report about 51 percent of their customer access lines serve medium and large

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[141] TOMLINSON, *supra* note 138, at 241-42.

[142] *Id.* at 241-65.

[143] TIA 2002 Market Review at 37.

[144] Carriers have not generally used satellite technologies to serve the enterprise market. While there was some fixed wireless entry in the enterprise market, it has been limited. *See, e.g.*, AT&T Comments, Attach. F, Declaration of Robert D. Willig (AT&T Willig Decl.) at paras. 200-01.

[145] MCI had acquired extensive rights-of-way and fiber cable in over 100 cities from Western Union in 1990, creating the competitive LEC MCIMetro in 1994. WorldCom acquired MFS, the largest competitive LEC, in 1996, Brooks Fiber in 1997 and MCIMetro, the fourth largest competitive LEC, in 1998. WorldCom had also acquired UUNET Technologies (which was providing Internet access to 350 corporate local area networks (LANs)) in August 1996. AT&T acquired the second largest ex-CAP, Teleport Communications Group, in early 1998. Accordingly, for a period of time after the enactment of the 1996 Act, WorldCom and AT&T were the two largest competitive LECs, accounting for about one-half of all competitive LEC revenues for 1998. TOMLINSON, *supra* note 138, at 346-54.

business customers.[146] Unlike the incumbent LEC legacy network that was built out from central offices in a radiating pattern, competitive LECs collocated in few incumbent LEC central offices and built fiber ring-lateral-spur configurations to connect large business customers.[147] Competitive LECs self-provision facilities, lease facilities from other competitive facilities providers or purchase high-capacity (DS1 and above) loops either as UNEs or special access services from the incumbent LECs. Competitive LECs' high-capacity loops, however provisioned, are difficult to count. BOCs estimate that competitive LECs' share of special access revenues is at least 28 percent.[148] The enterprise market has been expanding, and the BOCs also expanded their services in this market. BOCs report about 22 percent of their customer access lines serve medium and large business customers.[149] Further, BOCs state that they provided 19.5 million special access lines in 1996, growing to 78.6 million lines in 2001.[150] BOC provisioning of fiber and high-capacity loops to end-user customers' premises significantly increased in recent years. Total BOC reported DS1s terminating at customer premises increased over four fold from fewer than 300,000 in 1996, to over 600,000 by 1999 and almost 1.3 million in

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146 *Local Telephone Competition December 2002 Report* at Table 2.

147 MARTIN F. MCDERMOTT III, CLEC—AN INSIDER'S LOOK AT THE RISE AND FALL OF LOCAL EXCHANGE COMPETITION 64 (2002).

148 BOC UNE Fact Report 2002, App. L, at L-1, L-2. It is difficult to obtain data on the competitive LECs' market share. It appears, however, that the special access market is growing and the BOCs themselves are providing more special access services. *Id.*

149 *Local Telephone Competition December 2002 Report* at Table 2.

150 *Statistics of Communications Common Carriers September 2002 Report* at Table 2.6; Industry Analysis Division, Common Carrier Bureau, *Statistics of Communications Common Carriers* (Dec. 1997) at Table 2.10 (*Statistics of Communications Common Carriers December 1997 Report*).

2001.[151] BOC reported fiber terminated to customers' premises more than doubled between 1996 and 2001, from just under 1 million to over 2 million lines.[152]

46. To meet the business demands of enterprise customers, competitive carriers must meet more stringent design and operational standards with higher capacity and more reliability. Specifically, enterprise customers demand several different kinds of packet switching services provided by these competitive carriers including frame relay, and its predecessor X.25, which allow local area networks to be connected across a public network. Frame relay is especially valuable in connecting employees in several different, distant locations and more than 35,000 enterprises customers utilize frame relay with more than one million ports.[153] The frame relay market for services has grown from about $1.3 billion in 1996 to $7.6 billion in 2001 and use of frame relay is growing at a faster rate than use of dedicated leased lines because it is more economical and flexible.[154] Another technology, asynchronous transfer mode (ATM), however, is the most widely used carrier backbone technology and can guarantee different quality of service levels to meet different customer needs.[155] Frame relay's rapid growth slowed somewhat in recent years, partially as ATM became more widely deployed. In 2001, ATM technology had a total bandwidth of over

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[151] ARMIS Report 43-07 (Transmission Facilities, DS1s Terminated at Customer Premises, 1996 to 2001).

[152] *Id.* (Transmission Facilities, Fiber Terminated at Customer Premises, 1996 to 2001).

[153] TIA 2002 Market Review at 136.

[154] *Id.* at 138-39, Table III-11.2.

[155] *Id.* at 140.

12,000 DS0s while frame relay had fewer than 11,000 DS0 equivalents.[156]

47. A relatively new, but growing voice service used by enterprise customers is telephony provided over Internet protocol, also known as IP telephony.[157] Some analysts have estimated that close to half of U.S. businesses have implemented private business exchanges (PBXs) capable of providing IP telephony and place calls among corporate locations over an IP network: the IP PBX market is projected to be $3.9 billion (20 percent of the PBX market) by 2005, and 25 percent of call center contacts currently use IP technology.[158]

48. Some competitive LECs market integrated voice and data services to enterprise customers.[159] The business plan of these competitive LECs involves leasing high-capacity loops as UNEs and then using them efficiently to provide a bundled offering including voice, data and Internet access.[160]

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[156] *Id.* at 143. In 2001, there were about 26,000 ATM ports compared to 1.2 million frame relay ports. The high cost and technical complexity relative to other technologies make ATM potentially vulnerable to new technologies that might be provided at a lower cost. *Id.* at 140-43.

[157] We do not intend to define the regulatory classification of "IP telephony" here, but merely to discuss its use and growth in very broad terms.

[158] *See, e.g.*, CommWeb.com, *VoIP/IP Telephony Statistics* (Oct. 15, 2002), <http://www.commweb.com/article/COM20021015S0002> (visited Dec. 16, 2002).

[159] Companies such as ITC^Deltacom, NewSouth and Cbeyond have focused on providing integrated services to the business market. ALTS *et al.* Comments at 16; *see also* NewSouth Comments at 7-38; NuVox Comments at 5-8; ITC^Deltacom Petition for Waiver of Supplemental Order Clarification, CC Docket No. 96-98 at 1-2 (filed Aug. 16, 2001) (ITC^Deltacom Aug. 16, 2001 Petition).

[160] ALTS *et al.* Comments at 33. ITC^Deltacom, for example, offers a bundled package consisting of facilities-based long distance, local

49. In serving enterprise customers, the BOCs must operate under the Act's restrictions on BOCs originating long distance service from their regions until they have gained section 271 approval.[161] Many approvals have been granted, allowing the BOCs to expand their enterprise offerings. Currently, the BOCs have authority to provide in-region long distance service in 43 states, representing 82.6 percent of the BOC access lines and 82.2 percent of the United States population.[162] BellSouth was the first BOC to complete all section 271 authorizations for its service territory.[163]

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service, data and Internet access services and customer premises equipment. ITC^Deltacom Aug. 16, 2001 Petition at 1-2. NewSouth markets to small businesses, typically leasing a single DS1 as a UNE to support a mix of voice and data services. NewSouth Comments at 5. Over 90% of NewSouth customers are being served by DS1s upgraded from previous analog services. *Id.* NewSouth has deployed digital circuit and packet switches and leased intercity lit fiber from third parties to connect its switches and collocated equipment in incumbent LEC central offices. *Id.* at 9. NewSouth states that its facilities allow it to offer customers better prices and more and varied services. *Id.* at 9-10.

[161] 47 U.S.C. § 271. As an incentive to BOCs opening their local markets, Congress enacted section 271, which allows the Commission to grant BOCs entry into the interLATA market after the BOC has demonstrated that it has implemented the necessary conditions to open its market. The first section 271 authority was granted to Verizon in New York in December 1999. *Application by Bell Atlantic New York for Authorization Under Section 271 of the Communications Act To Provide In-Region, InterLATA Service in the State of New York*, CC Docket No. 99-295, Memorandum Opinion and Order, 15 FCC Rcd 3953 (1999) (*Bell Atlantic New York 271 Order*).

[162] Population numbers include Alaska, Hawaii and all of Connecticut. BOCs do not operate in Alaska and Hawaii. Some states have a low percentage of BOC access lines or, as is the case in SBC's territory in Connecticut, are not subject to section 271.

[163] *BellSouth FL/TN 271 Order*, 17 FCC Rcd 25828.

2. The Mass Market

50. The mass market for telecommunications services before 1996 was served more by monopoly providers than was the enterprise market.[164] Since 1996, various competitive LECs have used one or more of the three entry strategies set forth in the 1996 Act to provide competitive local service to many residential customers in the United States. By mid-2002, over 93 percent of the United States population lived in a zip code served by at least one competitive LEC providing some kind of service.[165] It appears that competitive LECs are more often found in urban than rural areas.[166] Over 51 percent of competitive LEC lines serve the residential/small business market while over 78 percent of BOC lines serve this group.[167]

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[164] The exception to this statement was the provision of commercial mobile radio service (CMRS), a service which had 44 million residential and business telephony subscribers in 1996. *Trends in Telephone Service May 2002 Report* at Table 12.2. However, the number of subscribers has risen to almost 129 million by mid-2002. *Local Telephone Competition December 2002 Report* at Table 11. Commercial mobile service is any mobile service, as defined in section 3 of the Act, as amended, provided for profit and making interconnection services available to the public. *See* 47 U.S.C. § 332(d)(1). Commercial Mobile Services became known by the Commission as the Commercial Mobile Radio Service, or CMRS. *See* 47 C.F.R. § 20.9. Mobile Telephony is a "CMRS."

[165] *Local Telephone Competition December 2002 Report* at Table 13. Competitive LECs' access lines total about 17 million, or 9% of total U.S. access lines. *Id.* (calculation using Table 3 and Table 4). By mid-2002, over 11 million BOC lines had been leased as UNE-L or UNE-P to competitive LECs. *Id.* at Table 4.

[166] Thirty-three percent of all zip codes, serving about 7% of the population, have no competitive LEC presence. *Id.* at Table 12; *see also* James Zolnierek, James Eisner & Ellen Burton, *An Empirical Examination of Entry Patterns in Local Telephone Markets*, 19 J. REG. ECON. 143-59 (2001) (quantifying increased competitive LEC presence in areas with a high percentage of urban households).

[167] *Local Telephone Competition December 2002 Report* at Table 2.

51. The mass market has also seen competition increase in the provision of broadband services, largely fueled by the popularity of the Internet.[168] The residential market for Internet access has supported additional line growth for dial-up service. In 1988, only 2.7 percent of households had two or more telephone lines. That percentage steadily increased to 9.1 percent in 1992, 16.8 percent in 1996, 19.7 percent in 1998, and 26.5 percent in 2000.[169] Internet access has spurred growing xDSL subscription. As of mid 2002, there were about 5.1 million xDSL lines in service. Incumbent LECs were the major providers of xDSL service with 95.6 percent of xDSL lines, while competitive LECs accounted for 4.4 percent.[170] Eighty-two percent of the incumbent LECs' xDSL lines and 39 percent of the competitive LECs' xDSL lines are residential. The BOCs served about 4.5 million xDSL customers in mid 2002. Due to technical network limitations and other reasons, less than 50 percent of BOC customers are able to subscribe to xDSL. One state commission expects this percentage to rise to about 75 percent by 2005.[171]

52. The mass market has also experienced increased narrowband and broadband competition from intermodal competitors. Cable operators have expanded into both voice telephony and cable modem service, which have, to a limited extent, competed with services of traditional wireline

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[168] *See* FCC Technical Advisory Council, Optical Working Group, *Broadband Access Platforms for the Mass Market—An Assessment* (Dec. 4, 2002), <http://www.fcc.gov/oet/tac/Broadband_Access_Supporting_Materials_12_4_02.ppt>.

[169] *Trends in Telephone Service May 2002 Report* at Table 8.4. It appears that the proportion of households with additional lines declined to 24.6% for 2001. Preliminary staff estimate for 2001.

[170] *High Speed Services December 2002 Report* at Table 5

[171] Letter from Lila A. Jaber, Chairman, Florida Public Service Commission, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 96-98, 98-146, 98-147, 01-337, 02-33, Attach. at 12-15 (filed Nov. 6, 2002) (Florida Commission Nov. 6, 2002 *Ex Parte* Letter).

providers.[172] The cable companies have remained focused on mass market, largely residential service consistent with their historic residential network footprints, and bundling telephone service with cable modem services.[173] More broadly, cable companies are offering cable modem service capability to 71 percent of United States households with a current take rate of about 11 percent.[174] In 2002, cable companies provided cable modem service to approximately 9.2 million subscribers.[175] Some cable companies have begun offering local voice service.[176] In mid-2002, cable telephony represented over 2.5 million access lines in 27 states, a 39

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[172] The largest such residential service cable companies are Adelphia Business Solutions/Hyperion, Cablevision Lightpath, Comcast Business Communications, Cox Fibernet/Cox Business Services and Time Warner Telecom. National Cable & Telecommunications Association, *Cable Telephony: Offering Consumers Competitive Choice*, at 8-9 (July 2001) (NCTA 2001 Report), <http://www.ncta.com/pdf_files/Telephony_ReportComplete.pdf>.

[173] However, there is some recent cable expansion into the enterprise market. Letter from Edward Shakin, Vice President and Associate General Counsel, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, 02-33, 01-337 at 1-4 (filed Jan. 15, 2003) (Verizon Jan. 15, 2003 *Ex Parte* Letter).

[174] *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable And Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket No. 98-146, Third Report, 17 FCC Rcd 2844, 2871-72, paras. 65-66 (2002) (*Third Section 706 Report 2002*); *High Speed Services December 2002 Report* at Table 1. Some analysts expect cable modem subscriptions to increase to 28-30 million by 2006 with a 40% penetration rate. *Third Section 706 Report 2002*, 17 FCC Rcd at 2872, para. 66.

[175] *High Speed Services December 2002 Report* at Table 5.

[176] Cox and AT&T are the largest voice-over-cable providers. NCTA 2001 Report at 1-4.

percent growth over the previous year.[177] Industry sources state that over 10 million households have access to cable telephony.[178] Cable companies' voice service competes with the primary landline voice service and second line while cable modem service competes with second line dial-up service and xDSL service.

53. Wireless telephone subscriber growth for the mass market has been remarkable. From fewer than 100,000 subscribers in 1984, there were over 5 million subscribers by 1990, over 44 million in 1996, and almost 129 million by mid-2002.[179] Over 90 percent of the United States population lives in counties served by three or more wireless operators; about two in five Americans now have a mobile phone.[180] Prices for wireless service have steadily declined in recent years. In 1990 average wireless bills were over $80 a month while the average monthly bill in mid-2001 was about $46.[181] Sixty-one percent of households had at least one wireless telephone in mid-2001.[182] Notably, 3 to 5 percent of wireless customers use their wireless phone as their only phone.[183]

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[177] *Local Telephone Competition December 2002 Report* at Table 5 and staff calculation.

[178] BOC UNE Fact Report 2002 at II-11.

[179] *Local Telephone Competition December 2002 Report* at Table 11. The wireless survey data present total cellular, broadband personal communications service (PCS), and specialized mobile radio (SMR) subscribers and does not distinguish between mass market and enterprise customers.

[180] BOC UNE Fact Report 2002 at I-4.

[181] *Trends in Telephone Service May 2002 Report* at Table 12.3.

[182] *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993*, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Seventh Report, 17 FCC Rcd 12985, 13016 (2002) (*Seventh Wireless Report 2002*).

[183] *Id.* at 13017.

Some carriers attribute, at least in part, the recent drop in wireline switched access lines[184] to this replacement of wireline phones by wireless phones. This replacement may particularly affect second-line growth.[185]

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[184] Since 2000, we have seen for the first time a decrease in the number of retail access lines served by the incumbent LECs: from 2000 to 2002, their share of access lines declined by about nine million, or about 4.7%. *Local Telephone Competition December 2002 Report* at Table 4. Some of the decline can be attributed to a decline in additional lines in households. Recent growth in additional residential lines in a household, from 16.8% in 1996 to 26.5% in 2000, appears to have decreased to less than 25% in 2001. *Trends in Telephone Service May 2002 Report*, Table 8.4 and preliminary staff estimate for 2001. Despite the recent drop in the number of BOC retail switched access lines, the retail and wholesale lines combined provided by BOCs have increased each year since 1996. BOC business service offerings have expanded in recent years with more special access (measured as DS0 equivalents). Considering all switched and non-switched access lines, the BOCs' total access line count has increased in recent years, at 188.3 million in 1999, 228.5 million in 2000 and 235.3 million in 2001. *See Statistics of Communications Common Carriers September 2002 Report* at Table 2.6; Industry Analysis Division, Common Carrier Bureau, *Statistics of Communications Common Carriers* (Sept. 2001) at Table 2.6 (*Statistics of Communications Common Carriers September 2001 Report*); Industry Analysis Division, Common Carrier Bureau, *Statistics of Communications Common Carriers* (Aug. 2000) at Table 2.6 (*Statistics of Communications Common Carriers August 2000 Report*).

[185] *Seventh Wireless Report* 2002, 17 FCC Rcd at 13016-17. The penetration rate is calculated by dividing total wireless subscribers by total population. Such replacement may also be occurring for long distance. *Id.* at 13018. Other forms of wireless availability have improved in recent years, becoming a possible method to access the Internet for some customers. Mobile data services had between 2 and 2.5 million subscribers in 2000 and between eight and ten million subscribers in 2001. *Id.* at 13038-39.

Local Multipoint Distribution System (LMDS) is another fixed wireless broadband transmission technology. Most effective where customers are closely grouped, this line-of-sight transmission technology has not been significantly deployed. About $220 million LMDS investment occurred in 2001, as compared to $61 million the year before.

54. High-speed satellite data service is also available in most areas of the United States. Satellite broadband exists and is most attractive where xDSL or cable modem service is not available.[186] But satellite services generally are not price competitive with wireline services in the mass market except in specialized situations.[187] As two-way Internet connectivity is deployed and if prices decline over time, satellite service may become a more viable alternative to terrestrial high-speed services like xDSL. In 2001, there were only 212,610 reported high speed service subscribers of satellite and fixed wireless combined.[188]

V. PRINCIPLES OF UNBUNDLING

55. In this Part, we set forth our new standards and guiding principles for determining when a network element should be unbundled. We adopt below an approach to unbundling that is faithful to the statute, responsive to the Supreme Court and the D.C. Circuit, economically rational, and that embraces the states' involvement in the unbundling process.

56. In subpart A, we interpret the definition of "network element" contained in section 153(29) of the Act as it relates to our unbundling inquiry. Specifically, we conclude that a

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See TIA 2002 Market Review at 195. As the wireless technology continues to improve, wireless may become a more practical and attractive alternative to wireline for data services.

[186] *Third Section 706 Report 2002*, 17 FCC Rcd at 2877, para. 78. Until recently, only one-way Internet connectivity was available, with a dial-up upstream connection accompanied by a high-speed satellite-based downstream path. *Id.* at 2880, para. 85.

[187] Some analysts estimate that the 20-30 million United States homes where cable modem or xDSL is not available are the most likely current potential customers for satellite services. *Id.* at 2877, para. 78.

[188] Industry Analysis and Technology Division, Wireline Competition Bureau, *High Speed Services for Internet Access: Status as of December 31, 2001* (July 2002) at Table 1, Table 2 (*High Speed Services July 2002 Report*).

"network element" refers to an element of the incumbent LEC's network that is capable of being used to provide a telecommunications service. In subpart B, we set forth our new interpretation of "impair." We analyze principles from the Supreme Court and D.C. Circuit opinions on "impair"; what guidance we derive from the language, structure, purposes, and history of the 1996 Act; and what lessons we can take from economic and legal literature on topics that bear some resemblance to the ambiguous "impair" standard in an effort to make our interpretation as economically rational as possible. From these sources, we derive an interpretation of "impair" that asks whether lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic. We will apply this interpretation of "impair" to individual elements in a more granular manner than the Commission has in the past, taking into account different customer classes, geographic considerations, and service considerations. We also explain the relationship between unbundling obligations and implicit support flows.

57. In subpart C, we reaffirm our existing interpretation of the "necessary" standard. In subpart D, we reaffirm our interpretation of the "at a minimum" language of section 251(d)(2), although we emphasize that we apply this language with restraint throughout the Order, and we find no instances on this record where unbundling is warranted in the absence of impairment. In subpart E, we explain the critical role of the states in the unbundling process; specifically, we explain how we will delegate to the states the authority to perform a more granular analysis to determine where unbundling is appropriate, and the extent to which states may establish unbundling requirements pursuant to state law that are consistent with federal requirements.

A. Definition Of "Network Element"

58. We reaffirm our previous interpretation of the definition of "network element," set forth in section 153(29) of the Act, as requiring incumbent LECs to make available to requesting carriers network elements that are capable of being used in the provision of a telecommunications service.[189] Section 153(29) defines "network element" as "a facility or equipment used in the provision of a telecommunications service. Such term also includes features, functions and capabilities that are provided by means of such facility or equipment . . . ."[190] As an initial matter, we disagree with those commenters that continue to argue that "network elements" can only be physical facilities or pieces of equipment and therefore cannot include mere features, functions, and capabilities of a physical facility or equipment, such as a portion of the available bandwidth of a loop.[191] Several courts, including the Supreme Court, have previously considered and rejected this argument. Indeed, the Supreme Court stated that "[g]iven the breadth of [Congress's network element] definition, it is impossible to credit the incumbents' argument that a 'network element' must be part of the physical facilities and equipment used to provide local telephone service."[192]

59. In addition, the definition of a network element is ambiguous as to whether the facility or equipment (and the accompanying features, functions and capabilities) must be *actually used by the incumbent LEC* in the provision of a

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189 *UNE Remand Order*, 15 FCC Rcd at 3845, para. 329.

190 47 U.S.C. § 153(29).

191 *See, e.g.*, Verizon Comments at 82-83.

192 *Iowa Utils. Bd.*, 525 U.S. at 387; *see also USTA*, 290 F.3d at 430 (upholding the Commission's decision that the high frequency portion of the loop is a capability of the loop, and stating that "the Commission's view is convincing.").

telecommunications service or must be *capable of being used* by a requesting carrier in the provision of a telecommunications service regardless of whether the incumbent LEC is actually using the network element to provide a telecommunications service.[193] We find that, taken together, the relevant statutory provisions and the purposes of the 1996 Act support requiring incumbent LECs to provide access to network elements to the extent that those elements are capable of being used by the requesting carrier in the provision of a telecommunications service. We note that, by using the terms "features, functions, and capabilities," the definition itself uses broad and expansive terminology in defining its scope. For example, the term "capability" is defined in Webster's New College Dictionary as "potential ability."[194] Limiting a requesting carrier's ability to obtain access only to facilities or equipment (and associated features, functions and capabilities) actually used in the provision of a telecommunications service would require a reading in tension with this definition.

60. With regard to the purposes of the Act, as mentioned above, section 251(d)(2) requires the Commission to consider whether the failure to provide access to a particular network element would impair the ability of a requesting telecommunications carrier "to provide the services that *it* seeks to offer."[195] To interpret the definition of "network element" so narrowly as to mean only facilities and equipment actually used by the incumbent LEC in the provision of a telecommunications service also would be at

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193 We look to the use by the requesting carrier as discussed below. *See infra* Part V.B.2.c (discussing our adopted service-specific approach).

194 *See* WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 226 (1994) (defining "capability" as "the quality or state of being capable; potential ability; the capacity to be used, treated, or developed for a particular purpose.").

195 47 U.S.C. § 251(d)(2)(B) (emphasis added).

odds with the statutory language in section 251(d)(2) and the pro-competitive goals of the 1996 Act.[196] Such a finding would deny competitive LECs any certainty about the availability of a network element in a given market unless and until a determination was made about whether the incumbent LEC is actually using that network element in its provision of a telecommunications service in that market. Providing requesting carriers with access only to those facilities and equipment actually used by the incumbent LEC would also lead to such unreasonable results as preventing a spare loop that is capable of providing second-line service from being considered a "network element" if the customer were not purchasing service over that line from the incumbent LEC.[197] Finally, an alternative reading of the statute would allow incumbent LECs to prevent competitors from making new and innovative uses of network elements simply because the incumbent LEC has not yet offered a given service to consumers. Such a result would stifle a competitor's ability to innovate and could hinder deployment of advanced telecommunications services.[198]

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[196] *See, e.g.*, Letter from David Lawson, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 12-13 (filed Dec. 23, 2002) (arguing that the manner in which an incumbent LEC chooses to use its facilities is irrelevant to competitive LECs' rights under section 251(c)(3)) (AT&T Dec. 23, 2002 Broadband *Ex Parte* Letter).

[197] *See* Letter from Praveen Goyal, Senior Counsel for Government & Regulatory Affairs, Covad, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 02-33 at 3 (filed Jan. 10, 2003) (Covad Jan. 10, 2003 *Ex Parte* Letter).

[198] Section 706, reproduced in the notes under section 157 of the Act, directs the Commission to encourage the deployment of advanced telecommunications capability to all Americans on a reasonable and timely basis. 47 U.S.C. § 157 nt. Additionally, as noted in the Joint Managers' Statement, the goals of the 1996 Act were to provide for a pro-competitive, deregulatory national framework "designed to accelerate rapidly private sector deployment of advanced telecommunications and

B. The Impairment Analysis

1. The "Impair" Standard

61. In this Part, we first describe the principles that the courts have instructed us to use in interpreting the "impair" standard. We explain what guidance we can derive from the language, structure, purposes, and history of the 1996 Act itself. We examine several legal doctrines and economic theories in related or analogous areas to see what guidance they may provide as we interpret the ambiguous "impair" standard. Finally, we explain our new interpretation of the "impair" standard, which draws on all these sources.

a. Court Decisions

62. Since 1996, the Commission has twice interpreted the "impair" standard, and twice the courts have remanded its interpretation as lacking the rigor intended by Congress. In its first attempt to interpret and apply the unbundling provisions of the 1996 Act, the Commission found, in section 251(c)(3), a "duty to provide all network elements for which it is technically feasible to provide access on an unbundled basis."[199] The Commission then found in section 251(d)(2) the "authority to refrain from requiring incumbent LECs to provide all network elements for which it is technically feasible to provide access on an unbundled basis."[200] In applying that "authority to refrain," the Commission interpreted "impair" to mean "'to make or cause to become worse; diminish in value,'"[201] meaning there is impairment if

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information technologies and services to all Americans by opening all telecommunications markets to competition . . . ." Joint Managers' Statement, S. Conf. Rep. No. 104-230, 104th Cong., 2d Sess. 113 (1996) (Joint Conference Report).

199 *Local Competition Order*, 11 FCC Rcd at 15640, para. 278.

200 *Id.* at 15641, para. 279.

201 *Id.* at 15643, para. 285 (quoting RANDOM HOUSE COLLEGE DICTIONARY 665 (rev. ed. 1984)).

"the quality of service the entrant can offer, absent access to the required element, declines and/or the cost of providing the service rises."[202] In determining whether the cost would rise or the quality would decline, the Commission determined to examine whether using a different element within the incumbent LEC's network would alleviate the impairment.[203] The resulting list of UNEs was extremely broad, encompassing everything from the NID to operator services and directory assistance.

63. The Supreme Court reviewed this interpretation in *Iowa Utilities Board* and concluded that the Commission's interpretation failed to comport with the Act, which "requires the FCC to apply *some* limiting standard, rationally related to the goals of the Act."[204] In particular, the Court faulted the agency for "assum[ing] that *any* increase in cost (or decrease in quality) imposed by denial of a network element . . . causes the failure to provide that element to 'impair' the entrant's ability to furnish its desired services,"[205] and for "blind[ing] itself to the availability of elements outside the incumbent's network."[206] Specifically with regard to costs, the Court noted that if competition were perfect and all market participants were providing service at marginal cost, "the Commission's total equating of increased cost (or decreased quality) with 'necessity' and 'impairment' might be reasonable," but such had not been shown to be the case.[207] The Court also rejected the notion that section 251(c)(3) imposes a general unbundling obligation, which the Commission has the authority to temper by making individual determinations of a

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202 *Id.*

203 *Id.*

204 *Iowa Utils. Bd.*, 525 U.S. at 388 (emphasis in original).

205 *Id.* at 389-90 (emphasis in original).

206 *Id.* at 389.

207 *Id.* at 390.

lack of necessity or impairment under section 251(d)(2). Rather, the Act requires the Commission to justify unbundling elements, by applying the standards of section 251(d)(2).[208]

64. Justice Breyer concurred with the majority's handling of the "impair" standard, and added several specific concepts to elaborate on the Court's statement that the Commission must find "*some* limiting standard" in its interpretation of "impair."[209] Overall, Justice Breyer stated his belief that the Act calls for "balance" between unbundling's benefits to competition and its social and administrative costs.[210] On the one hand, Justice Breyer acknowledged that unbundling benefits competition by "seek[ing] to facilitate the introduction of competition where practical, *i.e.*, without inordinate waste."[211] On the other hand, Justice Breyer expressed his view that unbundling "can have significant administrative and social costs inconsistent with the Act's purposes."[212] Specifically, unbundling has administrative costs because two competitors are sharing the same facility. Someone must manage that sharing, and that management costs something. Also, unbundling has social costs, Justice Breyer explained, in the diminished incentives of the facility owner to "keep up or improve the property," as it must share the benefits of those investments with its competitors.[213] Justice Breyer also expressed his view that the Act imposes

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208 *See id.* at 391-92.

209 *See id.* at 427-31 (Breyer, J., concurring with regard to unbundling rules).

210 *Id.* at 429-30 (Breyer, J., concurring).

211 *Id.* at 428.

212 *Id.*

213 *Id.* at 428-29.

limits on unbundling that are related to antitrust's essential facilities doctrine.[214]

65. In response to the Supreme Court's remand, the Commission interpreted the "impair" standard anew in the *UNE Remand Order*, attempting to take the Court's criticisms into account. The Commission concluded that:

> the failure to provide access to a network element would "impair" the ability of a requesting carrier to provide the services it seeks to offer if, taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element materially diminishes a requesting carrier's ability to provide the services it seeks to offer.[215]

In determining whether alternatives are in fact available, the Commission stated it would consider the factors of cost, timeliness, quality, ubiquity, and impact on network operations.[216] The resulting list of UNEs was narrower than the Commission's first list to the extent the Commission excluded some circuit switches, operator services, and directory assistance. The Commission did, however, extend unbundling requirements to dark fiber, subloops, and packet switches in some circumstances.

66. As explained above, shortly before the D.C. Circuit addressed the Commission's revised unbundling standards in *USTA*,[217] the Supreme Court issued its decision in *Verizon*[218] upholding the TELRIC pricing standard and the

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214 *Id.* at 428.

215 *UNE Remand Order*, 15 FCC Rcd at 3725, para. 51.

216 *Id.* at 3731, para. 65; *see also supra* Part III.

217 *USTA*, 290 F.3d at 415.

218 *Verizon*, 535 U.S. at 467.

Commission's combinations rules. The *Verizon* Court placed special emphasis on the deference owed to the Commission's interpretation of the Act, noting that section 252(d)(1), which authorized the Commission to set "just and reasonable" UNE rates "based on the cost . . . of providing the . . . network element," left the Commission "ample discretion" in establishing a rate-setting methodology.[219] The Court's task was therefore not to determine whether TELRIC was the *ideal* pricing mechanism, but rather to evaluate whether the TELRIC methodology reflected a *reasonable* interpretation of the Act, given the leeway accorded the Commission.[220]

67. While *Verizon* addressed the section 252(d)(1) pricing standard rather than the section 251(d)(2) "impair" standard, the decision touched on issues related to our analysis here. However, consistent with the deference described above, the Court refrained from issuing particular policy mandates, confining its inquiry to the reasonableness of the Commission's chosen approach. For example, while the majority accepted as "plausibl[e]"[221] the Commission's arguments that TELRIC pricing would not stifle investment in new facilities, it did not purport to resolve the parties' disagreement on this score, and did not preclude later modification of the TELRIC rules or other aspects of the unbundling regime. Instead, the Court recognized that it was "in no position to assess the precise economic significance" of the parties' opposing arguments regarding incentives,[222] and that it "ha[d] no idea whether a different forward-looking pricing scheme would have generated even greater

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219 *Id.* at 500; *see also id.* at 523 ("In short, the incumbents have failed to carry their burden of showing unreasonableness to defeat the deference due the Commission.").

220 *See, e.g., id.* at 523 ("TELRIC appears to be a reasonable policy for now, and that is all that counts.")

221 *Id.* at 504.

222 *Id.* at 507.

competitive investment than the $55 billion that the entrants claim."[223] Thus, it merely acknowledged that the Commission had been forced to decide whether it was "better to risk keeping more potential entrants out, or to induce them to compete in less capital-intensive facilities with lessened incentives to build their own bottleneck facilities,"[224] and found that in such circumstances, "[i]t was not obviously unreasonable for the FCC to prefer the latter."[225]

68. Days later in the *USTA* decision, the D.C. Circuit squarely addressed the *UNE Remand Order*'s interpretation of "impair" and found substantial faults with it.[226] First, the court echoed the call Justice Breyer made in *Iowa Utilities Board* for "balance," stating that the Act contemplates some

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223 *Id.* at 517.

224 *Id.* at 510.

225 *Id.* Thus, we disagree with commenters that suggest that *Verizon* mandates a particular result in this Order. While we acknowledge the Court's statement that the 1996 Act was meant "to reorganize markets by rendering regulated utilities' monopolies vulnerable to interlopers" and that its ratesetting mechanism is "designed to give aspiring competitors every possible incentive to enter local retail telephone markets," *id.* at 489, we adhere, as we must, to the Court's specific statement with regard to "necessary" and "impair" that the Commission must find "*some* limiting standard, rationally related to the goals of the Act." *Iowa Utils. Bd.* 525 U.S. at 388 (emphasis in original). *But see, e.g.*, Talk America Reply at 2-4; NuVox Reply at 3-4.

226 *See generally USTA*, 290 F.3d at 415 (cert. denied after adoption of this Order but before release). Because the D.C. Circuit found substantial fault with the *UNE Remand Order* and because the *Triennial Review NPRM* asked sweeping questions about retooling the Commission's unbundling policies, we dismiss as moot the portion of the CompTel Nov. 26, 2001 Joint Conference Petition in which CompTel seeks a narrow review of the *UNE Remand Order* that would preclude parties from using this Triennial Review as a reconsideration proceeding. *See* Competitive Telecommunications Association Petition, CC Docket No. 96-98 (filed Nov. 26, 2001) (CompTel Nov. 26, 2001 Joint Conference Petition).

trade-offs between the pro-competition benefits of unbundling and the detriments of unbundling such as the disincentives to investment and the costs of managing shared facilities.[227] With regard to the Commission's treatment of cost disparities, the D.C. Circuit found that the Commission erred by considering as relevant "cost disparities that are universal as between new entrants and incumbents in *any* industry."[228] The D.C. Circuit also cautioned the Commission to consider the competitive landscape when making an unbundling determination, and not to exclude the participation of relevant intermodal competitors as a relevant factor in the analysis.[229] Finally, the D.C. Circuit noted that the essential facilities doctrine might "offer useful concepts for agency guidance" in interpreting the unbundling provisions of the 1996 Act, even if the Act does not require its use.[230]

b. Guidance from the Act and Its History

69. In this Part, we explain what we derive from the language, structure, purposes, and history of the "impair" standard and the 1996 Act as we attempt to interpret it in a manner that is faithful to its language, comports with Congress's intent, responds fully to the courts, and is economically rational. The "impair" language itself is ambiguous, and as one Justice has explained, this ambiguity reflects "congressional uncertainty about the extent to which compelled use of an incumbent's facilities will prove necessary to avoid waste."[231] Thus, it is up to the Commission to resolve the ambiguity of the "impair" standard.

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227 *USTA*, 290 F.3d at 425, 427.

228 *Id.* at 427 (emphasis in *USTA*).

229 *Id.* at 429-30.

230 *Id.* at 428 & n.4 (*cert. denied* after adoption of this Order, but before release).

231 *Iowa Utils. Bd.*, 525 U.S. at 428 (Breyer, J., concurring). Justice Breyer asks whether wireless or cable technologies might provide the

70. We note that other language in the 1996 Act provides some clues as to Congress's intent. First, we look to the Preamble of the 1996 Act, which calls it "[a]n Act [t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies."[232] We believe that this language gives the best snapshot of Congress's overall intent in enacting the 1996 Act. We reaffirm the conclusion in the *UNE Remand Order* that facilities-based competition serves the Act's overall goals.[233]

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local telephone competition for which Congress was striving, without the need for extensive unbundling of incumbent LECs' facilities. *Id.*

[232] *See* Preamble to the 1996 Act.

[233] *UNE Remand Order*, 15 FCC Rcd at 3704, para. 14; *see also, e.g.*, BellSouth Comments at 7; Progress & Freedom Foundation Comments at 5, 7-8; Progress & Freedom Foundation Reply at 3-4 (recognizing that markets can support a limited number of facilities-based competitors). Facilities-based competition better serves the goal of deregulation because it permits new entrants to rely less on incumbent LECs' facilities and on regulated terms for access and price. And it serves the goal of innovation because new facilities are more likely to have additional capabilities to provide new services to consumers and competitors' deployment of new facilities is likely to encourage incumbents to invest in their own networks. *See, e.g.*, Qwest Comments at 3; SBC Comments at 25-26; BellSouth Comments, Declaration of Howard A. Shelanski at paras. 7-9, 14-16 (BOC Shelanski Decl.) (also attached to SBC Comments and Verizon Comments); Qwest Farrell Reply Decl. at paras. 5-6. *But see, e.g.*, WorldCom Reply at 51. Facilities-based competition also increases the likelihood that new entrants will find and implement more efficient technologies, thus benefiting consumers. *See* BOC Shelanski Decl. at paras. 7-9. We thus disagree that duplication of facilities is necessarily "wasteful." We expect consumer benefits to follow from new entrants' investment in facilities, and where duplication is uneconomic, those facilities often will be unbundled pursuant to our analysis. *See, e.g.*, Verizon Reply at 24-27. Finally, facilities-based competition creates network redundancy, which increases reliability and enhances national security. *See* CompTel Comments at 78-79; SBC Comments at 26; USTA Comments at 5. Thus, we disagree with

71. Specifically as to "impair," we note an important distinction that the Act makes, which provides us guidance on how to interpret this term. Section 251(d)(2) of the Act contains two different standards, "necessary" and "impair."[234] The "necessary" standard, which applies to proprietary elements, instructs the Commission to consider whether "access to such network elements as are proprietary in nature is *necessary*."[235] By contrast, the "impair" standard, which applies to non-proprietary elements, instructs the Commission to consider whether "the failure to provide access to such network elements would *impair* the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer."[236] In past orders, the Commission has interpreted the "necessary" standard as a more rigorous standard than the "impair" standard, and this construct has not been disturbed by the courts. We believe it is reasonable to continue to interpret the "impair" standard as less demanding than the "necessary" standard.[237] We believe this approach reflects Congress's intentions in creating two distinct standards for two classes of elements.

72. As we formulate our interpretation of "impair" that is less demanding than "necessary," however, we remain cognizant that Congress did not create a general duty to unbundle, tempered by the "impair" standard of section 251(d)(2). As the courts have explained, if Congress had

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commenters that argue that the Act contains a "statutory mandate of equal treatment for all three options," although we are aware that Congress created an unbundling vehicle because complete duplication of the incumbent LECs' networks is not feasible. CompTel Comments at 9-12. *See generally, e.g.*, ASCENT Comments at 20-22; Utah Commission Reply at 2.

234 47 U.S.C. § 251(d)(2)(A), (B).

235 *Id.* § 251(d)(2)(A) (emphasis added).

236 *Id.* § 251(d)(2)(B) (emphasis added).

237 *See, e.g.*, AT&T Reply at 35.

wanted to create a general unbundling duty, it would not have included the "impair" standard in the Act at all.[238] Thus, we must interpret the "impair" standard as Congress's direction for us to make specific, affirmative findings that elements should or should not be unbundled.

c. Guidance from Analogous Legal Doctrines and Economic Literature

73. In this Part, we cull concepts from many years of scholarly work and debate in legal and economic fields that resemble our "impair" standard in some way. Some of these legal doctrines and economic theories, such as essential facilities and natural monopoly, were described in the *USTA* decision and Justice Breyer's concurring opinion in *Iowa Utilities Board* as providing guidance on the appropriate standard to adopt. Other doctrines and theories, such as the Horizontal Merger Guidelines (HMG) used in antitrust and the economic theories developed in the barriers to entry literature, were proffered by commenters as providing models for such a standard. While we discuss later why we do not adopt any single one of these doctrines or theories in toto as our standard, we find that the lessons learned from these legal doctrines and economic theories help us develop an impairment standard, and will also help us in our attempt to apply this standard in our analysis of specific network elements.

74. *Several Standards Are Possible For Defining Impairment.* While the Act provides no definition of "impair," there are a number of possible definitions available from the legal and economic literatures for determining when impairment exists. One approach is to use the economic concept of barriers to entry to examine whether competitors are

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[238] *See Iowa Utils. Bd.*, 525 U.S. at 390 ("[I]f Congress had wanted to give blanket access to incumbents' networks on a basis as unrestricted as the scheme the Commission has come up with, it would not have included § 251(d)(2) in the statute at all.").

prevented from entering a particular market.[239] They include definitions by Joe Bain (any factor preventing entry when incumbents are earning above average profits)[240] and George Stigler (any factor that creates a cost faced by new entrants but not by the incumbent).[241] The essential facilities doctrine

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[239] The Commission previously discussed barriers to entry in its section 257 report. *See generally Section 257 Proceeding To Identify and Eliminate Market Entry Barriers for Small Businesses*, GN Docket No. 96-113, Report, 12 FCC Rcd 16802 (1997) (*Section 257 Report*).

[240] Bain defined a barrier to entry as "the extent to which, in the long run, established firms can elevate their selling prices above minimal average costs of production and distribution . . . without inducing potential entrants to enter the industry." JOE S. BAIN, INDUSTRIAL ORGANIZATION 252 (2d ed. 1968); *see also* W. KIP VISCUSI, JOHN M. VERNON, & JOSEPH E. HARRINGTON, JR., ECONOMICS OF REGULATION AND ANTITRUST 156 (3d ed. 2000). Bain argued that barriers to entry typically fall into the categories of absolute cost advantages, scale economies, and product differentiation. *See* JOE BAIN, BARRIERS TO NEW COMPETITION 12-16 (reprint 1993).

[241] George Stigler defined a barrier to entry as "a cost of producing . . . which must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry." GEORGE STIGLER, THE ORGANIZATION OF INDUSTRY 67 (1968). His definition of barriers to entry is narrower than Bain's definition, excluding any factor that had to be met by incumbent and entrant alike. One interpretation is that the advantages gained by an incumbent due to entering the market first could be viewed as an appropriate reward to those who took the risk of making the first investment. *See* Jonathan B. Baker, *Responding to Developments in Economics and the Courts: Entry in the Merger Guidelines* at 4-5 (2002), <http://www.usdoj.gov/atr/hmerger/11252.pdf>. For example, the presence of scale economies alone would not be a barrier to entry under his definition, even if they were large enough to permit only one firm to occupy the market, because entrants would face the same cost structure as the incumbents, and could achieve the same average costs as the incumbents if they were able to attract the same number of customers. Likewise, he argued that capital requirements and advertising costs are not barriers to entry, if both incumbents and entrants have the same obligation. *See* STIGLER, *supra*, at 67-70. More recently, Christian von Weizsacker proposed to restrict Stigler's definition to limitations to entry that create economic inefficiency. Thus, he would define a barrier to entry

provides another construct for identifying when entry is hindered, focusing on whether a particular facility is needed for an entrant to serve the market.[242] In addition, the HMG attempt to determine whether entry will be "timely, likely, and sufficient" to deter incumbents from exercising market

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that may warrant regulatory intervention as costs borne by entrants and not by incumbents that distort the operation of the market in a socially undesirable way. *See* C.C. von Weizsacker, *A Welfare Analysis of Barriers to Entry*, 11 BELL J. ECON. 400 (1980). Stigler's more limited definition of barriers to entry, and his use of price theory to analyze whether various factors are likely to impede entry, fit in with the "Chicago School's" emphasis on the use of economic theory to determine whether firm behavior causes harm to consumers, its belief that there should be a more permissive merger policy, and its skepticism of the need for vigorous antitrust action to prohibit many commonplace practices such as tie-ins and resale price maintenance. *See* Baker, *supra*, at 5-6; Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925-34 (1979).

[242] Under the essential facilities doctrine, a firm controlling a facility deemed essential is required to share that facility with competitors at a reasonable price. *See* 3A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION, para. 771 (2001); Mats A. Bergman, *The Role of the Essential Facilities Doctrine*, 46 ANTITRUST BULL., Summer 2001, at 403. Although the Supreme Court has never explicitly adopted the essential facilities doctrine, it has determined that refusal to provide access to an essential facility to competitors can be an antitrust violation. *See* AREEDA & HOVENKAMP, *supra*, paras. 772-73; Phillip Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1989). To prove antitrust liability under the essential facilities doctrine, four conditions have been identified by circuit courts: (1) The facility is controlled by a monopolist; (2) Competing firms lack a reasonable ability to reproduce the facility; (3) Competing firms have been denied access to the facility; and (4) It is feasible to provide access to the facility. *See MCI Communications Co. v. American Tel. & Tel. Co.*, 708 F.2d 1081, 1132-33 (7th Cir. 1983); *see also* Bergman, *supra*, at 407-08; Robert Pitofsky, *The Essential Facilities Doctrine Under United States Antitrust Law*, 708 PLI/PAT 775, 781-82 (2002).

power.[243] As explained below, no one of these standards comports with the "impair" concept entirely. Indeed, these standards were developed for other purposes, and have been written about and discussed since long before the 1996 Act.

75. *Many Factors Can Act as Barriers to Entry.* Depending on the circumstances, barriers to entry can come from a variety of factors such as sunk costs,[244] scale economies,[245]

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[243] The HMG were developed to embody economic theory in a set of guidelines for determining whether mergers would cause harm. As one of the steps of analysis, "the Agency assesses whether entry would be timely, likely, and sufficient either to deter or to counteract the competitive effects of concern." Horizontal Merger Guidelines, issued by U.S. Department of Justice and Federal Trade Commission, Apr. 2, 1992, revised Apr. 8, 1997 (HMG) § 0.2. Section 3 of the HMG, which examines the conditions under which committed entry (entry requiring significant sunk costs) will occur, is the most relevant to our analysis. HMG § 3.

Whether the Bainian or Stiglerian definition of barriers to entry should be used in the antitrust context has not been decided. Some authorities have adopted Bain's definition. *See* Baker, *supra* note 241, at 6 n.25. The Federal Trade Commission had decided that only Stiglerian barriers prevented entry that would eventually drive prices down to competitive levels. However, it also decided that a second type of barrier, an "impediment to entry," existed, which could delay entry into the market for a significant period of time. It thus effectively adopted a Bainian definition. *See* Baker, *supra* note 241, at 6-7.

[244] Sunk costs are those costs that are unrecoverable upon exit from the market. *See* DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION 28 (3d ed. 2000). Scholars point out that when there are large fixed and sunk costs, fewer firms are able to profitably coexist in the industry. *See* Babu Nahata & Dennis Olson, *On the Definition of Barriers to Entry*, S. ECON. J. 236-39 (July 1989); JOHN SUTTON, SUNK COSTS AND MARKET STRUCTURE: PRICE COMPETITION, ADVERTISING, AND THE EVOLUTION OF CONCENTRATION (1991). Significant sunk costs by the incumbent can increase an entrant's concern that an incumbent will lower prices in the face of vigorous competition. In addition, large sunk costs can give a significant first-mover advantage to the incumbent. Other firms that are contemplating entry will realize that large-scale facilities-based entry on their part will create excess capacity and force prices down to marginal cost, leading to large losses.

scope economies,[246] absolute cost advantages,[247] capital requirements,[248] first-mover advantages,[249] strategic behavior

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These firms are therefore unlikely to enter. *See Section 257 Report*, 12 FCC Rcd at 18614 n.48; *Merger of MCI Communications Corp. and British Telecommunications PLC*, GN Docket No. 96-245, Memorandum Opinion and Order, 12 FCC Rcd 15351, 15413, para. 162 (1997); *see also* JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 314-21 (1988); CARLTON & PERLOFF, *supra*, at 79-80. High sunk costs also increase the cost of failure to an entrant. Thus, if there is a substantial risk that entry will not be successful for various reasons, including uncertainty concerning demand for the firm's product and the firm's operational ability to enter the market and achieve profitability, then the presence of large sunk costs could raise the cost of failure and exit sufficiently to deter entry. DOUGLAS F. GREER, INDUSTRIAL ORGANIZATION AND PUBLIC POLICY 240 (3d ed. 1992). This risk could also be reflected in a higher cost of capital to entrants, thus discouraging entry into industries which are inherently risky. *See* VISCUSI, VERNON, & HARRINGTON, *supra* note 240, at 161; HMG § 3.3.

[245] Scale economies refer to lower average costs from producing a larger quantity of output. A more technical definition is that economies of scale exist at a particular range of output when the long run average total cost decreases as output expands. *See* KENNETH TRAIN, OPTIMAL REGULATION 5 (1991). Scale economies can be a barrier to entry if entrants are likely to acquire fewer customers and sell less output than the incumbent, and the resulting higher average cost for the entrants makes it difficult for them to compete with the incumbent, particularly if retail prices are close to the incumbent's average cost.

[246] Economies of scope exist when one firm can produce two or more products at a lower total cost than if each product were produced separately by different firms. *See* TRAIN, *supra* note 245, at 8. Scope economies can be a barrier to entry if entrants are unable to produce and sell all of the products the incumbent produces, and the resulting higher cost makes it unprofitable to enter the market. *See* SCHERER & ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 361 (3d ed. 1990).

[247] An incumbent has an absolute cost advantage if, for any given level of output, its per unit costs are lower than for an entrant. Possible sources of absolute cost advantages include privileged access to resources, control of a better technology or more efficient means of production which cannot be duplicated by the entrant, limitations in the availability of

by the incumbent,[250] product differentiation,[251] long-term contracts,[252] and network externalities.[253] Despite the different

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productive factors, the learning curve, and a lower cost of capital. *See* BAIN, BARRIERS TO NEW COMPETITION, *supra* note 240, at 144-45; GREER, *supra* note 244, at 241-42; VISCUSI, VERNON, & HARRINGTON, *supra* note 240, at 156; DON E. WALDMAN & ELIZABETH J. JENSEN, INDUSTRIAL ORGANIZATION: THEORY AND PRACTICE 139-41 (2d ed. 2001).

[248] Some argue that entrants, especially small entrants, are at a disadvantage to incumbents in raising large amounts of capital. Three possible reasons given are that entrants are a riskier investment, small entrants face higher transaction costs to raise funds, and the capital market is imperfect such that large firms have more market power to obtain loans at favorable rates. *See* GREER, *supra* note 244, at 256-57; WALDMAN & JENSEN, *supra* note 247, at 141-43.

[249] When a firm is able to gain an advantage in the marketplace as a result of entering the market first, it is said to have a first-mover advantage. There are a number of sources of first-mover advantages, such as advertising and gaining brand name preference, patents, sunk costs, and rights-of-way. *See* GREER, *supra* note 244, at 264-65; CARLTON & PERLOFF, *supra* note 244, at 80.

[250] Strategic behavior refers to actions by an incumbent that prevent entry from occurring. Game theory is now often used to model the behavior of incumbents and entrants, and determine the equilibrium set of strategies. Under certain circumstances, an incumbent could deter entry if it invested in additional capacity today, such that it would be likely to lower prices when entry occurs, creating losses for everyone. Such behavior is rational only if the incumbent expects that an entrant is likely to be deterred from entry as a result. *See* OZ SHY, INDUSTRIAL ORGANIZATION 186-206 (1995); TIROLE, *supra* note 244, at 314-21; Baker, *supra* note 241, at 7-9.

[251] Product differentiation refers to firms' attempts to distinguish their products from other firms' products and gain the ability to raise the price through advertising, the development of a brand name and product image, varying the product characteristics and quality, and selling in different locations. *See* WALDMAN & JENSEN, *supra* note 247, at 357 ("The objective of product differentiation is to increase profits by increasing demand and decreasing the price elasticity of demand. Sellers attempt to differentiate their products in many ways. Common forms of differentiation include location, service, physical characteristics, and

definitions that have been proposed, economists, since the advent of economic game theory, have developed a better understanding of the factors that impede entry.[254] There is general agreement in the economics literature on the critical importance of sunk costs, absolute cost advantages, first-mover advantages, and, in the right circumstances, scale economies, in determining the likelihood of entry.[255] In their analysis of entry, the HMG consider economic barriers to

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subjective image differences."); *see also* BAIN, INDUSTRIAL ORGANIZATION, *supra* note 240, at 29-30.

[252] An incumbent monopolist can induce customers to sign long-term contracts, with substantial penalties for breaching the contract. These contracts can act as a barrier to entry, if they prevent customers from switching to an entrant. *See* Philippe Aghion & Patrick Bolton, *Contracts As a Barrier to Entry*, 77 AM. ECON. REV. 388-401 (1987); TIROLE, *supra* note 244, at 196-98; HMG § 3.3.

[253] Network externalities (or network effects) exist if the benefit that a consumer derives from purchasing a good is affected by whether others take the same service. Consumers then derive greater benefit from purchasing services from larger networks. Thus, larger networks gain a competitive advantage over small networks, which allows them to charge higher prices. *See* J. Farrell & G. Saloner, *Standardization, Compatibility, and Innovation*, 16 RAND. J. ECON. 70-83 (1985); M. Katz & C. Shapiro, *Network Externalities, Competition and Compatibility*, 75 AM. ECON. REV. 424-40 (1985); OZ SHY, THE ECONOMICS OF NETWORK INDUSTRIES 17 (2001). In telecommunications networks, network externalities refer to the greater value of a network in which all users can communicate with all other users.

[254] *See, e.g.*, Richard J. Gilbert, *Mobility Barriers and the Value of Incumbency*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 475 (Richard Schmalensee & Robert Willig, eds. 1989).

[255] *See* SHY, INDUSTRIAL ORGANIZATION, *supra* note 250, at 182-206; Gilbert, *supra* note 254, at 531; Baker, *supra* note 241, at 7-16; *see also* AT&T Reply, Declaration of Robert D. Willig (AT&T Willig Reply Decl.) at paras. 18-36.

entry, focusing in particular on sunk costs and minimum viable scale (in addition to other factors).[256]

76. *Some Factors Only Cause Barriers to Entry in Particular Circumstances.* While many factors can cause barriers to entry, the economics literature points out that some are only barriers in particular circumstances, or in combination with other factors. For example, some scholars only consider capital requirements a barrier in the presence of substantial sunk costs, first-mover advantages, or risky entry.[257] Likewise, some consider scale economies a barrier

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[256] *See* HMG §§ 1.32, 3.3. Minimum viable scale is defined in the HMG as "the smallest average annual level of sales that the committed entrant must persistently achieve for profitability at premerger prices. Minimum viable scale is a function of expected revenues, based upon premerger prices, and all categories of costs associated with the entry alternative, including an appropriate rate of return on invested capital given that entry could fail and sunk costs, if any, will be lost." HMG § 3.3 (footnotes omitted). Scale economies are factored into the HMG's analysis through their impact on the minimum viable scale necessary for entry. Large scale economies are likely to create a large minimum viable scale, because it will likely require a large volume of output and sales to achieve an average cost lower than the expected price. *See* HMG § 3.3, n.31 ("The minimum viable scale of an entry alternative will be relatively large when the fixed costs of entry are large, when the fixed costs of entry are largely sunk, when the marginal costs of production are high at low levels of output, and when a plant is underutilized for a long time because of delays in achieving market acceptance."); *see also* Letter from C. Frederick Beckner, III, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1-8 (filed Nov. 14, 2002) (AT&T Nov. 14, 2002 *Ex Parte* Letter).

[257] Whether the cost of capital to entrants, particularly when large amounts of capital are needed, can be a barrier to entry has been controversial. Some argue that capital markets are imperfect, such that entrants—*e.g.*, small competitive LECs—would have poorer access to financial resources than incumbents. *See* BAIN, BARRIERS TO NEW COMPETITION, *supra* note 240, at 55; GREER, *supra* note 244, at 256-57; WALDMAN & JENSEN, *supra* note 247, at 141-43. Others argue that both incumbent and entrant have an equal need to spend money to build plant, or to create a brand name. Only in the presence of a significant risk of

only if they are large enough to prevent additional firms from profitably entering the industry, and they are combined with other factors such as significant sunk costs, long-term contracts or brand preference by consumers.[258] The HMG consider scale economies to be a barrier to entry only if the minimum viable scale is larger than the sales an entrant is likely to achieve. Many scholars consider scale economies that are so pervasive as to make it less expensive for one firm to satisfy all demand within a market to be a formidable barrier to entry—a natural monopoly.[259]

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failure by the entrant, not shared by the incumbent, will the entrant's higher cost of capital, due to the need for a risk premium, create a cost disadvantage for the entrant. *See* Richard A. Posner, *supra* note 241, at 945-46; VISCUSI, VERNON, & HARRINGTON, *supra* note 240, at 161.

[258] The importance of scale economies has been controversial. While Bain considered them a barrier to entry, Stigler argued that the existence of scale economies alone could not be a barrier to entry, since incumbents and entrants would face the same costs. *See* STIGLER, *supra* note 241, at 67-69. Subsequent writers have suggested that entry is still possible in the face of scale economies when an entrant could, through contracts with the majority of the customers, gain the advantage from scale economies. For example, studies have shown that there are scale economies for garbage collection in smaller municipalities. Many municipalities put up the contract for bid, thus allowing entry, because whoever gains the contracts wins the whole market. *See* CARLTON & PERLOFF, *supra* note 244, at 76, 658.

[259] A natural monopoly exists "when the costs of production are such that it is less expensive for market demand to be met with one firm than with more than one." TRAIN, *supra* note 245, at 1. For the single product firm, this situation occurs in the presence of economies of scale over the entire range of output demanded. TRAIN, *supra* note 245, at 5; 2 ALFRED E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS 119 (1989). For the multiproduct firm, a natural monopoly occurs when the cost of production for the entire set of products would be minimized if produced by one firm, *i.e.*, costs are subadditive for all relevant ranges of output for all products. Cost subadditivity is said to exist at a particular level of output for a particular set of products when one firm can produce all of those products at that level of output at a lower cost than two or more firms. WILLIAM SHARKEY, THE THEORY OF

77. *A Firm's Ability To Enter Is Affected by the Costs Incurred, Revenues Obtained, and Risk Involved in Entering a Market.* The economics literature generally states that a firm's decision to enter a market depends on whether the revenues it expects to obtain exceed the costs of entering and serving the market, factoring in the cost and risk of failure.[260] Thus, factors that raise an entrant's cost of service, limit its potential revenues,[261] or increase the risk or cost of failure reduce the likelihood of entry. Conversely, entry is made easier if an entrant has late-mover advantages, such as from using newer technologies or a better network architecture, or has additional revenue opportunities stemming from economies of scope. Operational barriers, which may not directly affect the long-term potential costs and revenues of the firm but could significantly delay or reduce the quality of the services an entrant is attempting to offer, must also be taken into consideration in determining the likelihood and extent of entry. In general, it is important to consider all of the relevant cost and demand characteristics of a market, including the presence and size of sunk costs, scale and scope

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NATURAL MONOPOLY 2 (1982). This occurs if there are both economies of scale and economies of scope for all products. When a natural monopoly exists, economic theory has traditionally held that it would be inefficient to have more than one firm in the market. SHARKEY, *supra*, at 54; 2 KAHN, *supra*, at ch. 4.

260 Stated in more technical terms, the condition is whether the net present value of the expected economic profit is positive. *See* WALDMAN & JENSEN, *supra* note 247, at 146 ("Microeconomic theory predicts that profit-maximizing firms will enter an industry if the net present value of expected profits, appropriately adjusted for risk, is positive."). Economists define "economic profit" to be the firm's revenues minus the full cost (including opportunity costs of the assets employed) of the firm. The opportunity cost of an asset is the value of its best alternative use. *See* CARLTON & PERLOFF, *supra* note 244, at 239; *see also* STEPHEN MARTIN, INDUSTRIAL ECONOMICS: ECONOMIC ANALYSIS AND PUBLIC POLICY 17 (2d ed. 1994) ("Economic profit is any accounting profit over and above the normal rate of return on an investment.").

261 HMG § 3.3.

economies, and absolute cost and first-mover advantages, as well as the full range of revenues available and countervailing late-mover advantages an entrant might possess, in determining whether entry is possible.[262]

78. *Need for Requirements To Be Economically Rational.* Many scholars and the federal courts have taken the view that the application of antitrust enforcement (including merger review and the essential facilities doctrine) is only necessary when the merger or behavior causes economic harm to consumers and society. That is, the antitrust law has been interpreted to include an element of economic rationality despite a lack of explicit language requiring such analysis in the statute.[263] Especially in light of guidance from courts that have already considered the Act's unbundling regime, we believe that any reasonable application of the impairment standard and unbundling requirements should be economically rational.[264]

79. *Unbundling of Bottleneck Facilities Can Cause Harms.* Scholars have pointed out that there may be countervailing reasons why the owner of a bottleneck facility should not be required to make the facility available to its potential competitors. For example, some scholars argue that if providing access to the facility would not enhance competition or provide economic benefits, courts should consider not making the facility available. Similarly, if making the facility available would deter desirable activity on the part of the owner (such as investment in upgrades or new

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[262] *See* STIGLER, *supra* note 241, at 67-70; BAIN, INDUSTRIAL ORGANIZATION, *supra* note 240, at 268-69; *see also* HMG § 3.1.

[263] *See* CARLTON & PERLOFF, *supra* note 244, at 604; VISCUSI, VERNON & HARRINGTON, *supra* note 240, at 66-67; ROBERT H. BORK, THE ANTITRUST PARADOX 89 (1978).

[264] *See Iowa Utils. Bd.*, 525 U.S. at 427-31 (Breyer, J., concurring); *USTA*, 290 F.3d at 425-30.

facilities) or the entrant (such as investment in alternatives), courts should consider not making the facility available.[265]

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[265] *See, e.g.*, Areeda, *supra* note 242, at 841; David J. Gerber, *Rethinking the Monopolist's Duty To Deal: A Legal and Economic Critique of the Doctrine of "Essential Facilities,"* 74 VA. L REV. 1069 (1988); *see also* Qwest Comments, Attach., John Haring & Harry M. Shooshan, *Reorienting Regulation: Toward a More Facilities-Friendly Local Competition Policy* at 10-11 (Apr. 3, 2002) (Qwest Haring & Shooshan Paper); SBC Comments at 26 (citing PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW para. 787c (Supp. 2001)); Verizon Comments at 27-32, 34-36. In his *Epithet* article, Areeda argued that a requirement to provide access should not be imposed if: the denial of access was for a legitimate business purpose or for legitimate business reasons; it is administratively impractical for the court to supervise; it does not enhance competition in the marketplace and provide economic benefits; or if it would deter desirable activity on the part of the owner. *See* Areeda, *supra* note 242, at 852-53. Areeda provided six principles for limiting application of the essential facilities doctrine: (1) There is no general duty to share—compulsory access should be exceptional; (2) The facility should be considered essential only if it is critical for the plaintiff's ability to compete and for the development of competition in the market; (3) Providing access must be likely to improve competition substantially in the marketplace, provide economic benefits, and not chill desirable activity; (4) Denial of access must not have occurred for a legitimate business purpose; (5) The monopolist intended to exclude others by improper means; and (6) The court must be able to adequately explain and supervise the access requirement. Areeda, *supra* note 242, at 852-53; Bergman, *supra* note 242, at 409-10; *see also* BOC Shelanski Decl. at para. 38.

Gerber argued that the essential facilities doctrine should be applied only when it improves consumer welfare, and that the focus should be on the vertical relationship between the monopolist and the downstream market. He believes that the test used by most courts, that a facility is essential when its owner's refusal to provide access harms the ability of its competitors to compete, is inappropriate and fails to maximize consumer welfare. *See* Gerber, *supra*, at 1069-72. Areeda and Hovenkamp note that once a court determines to mandate access, a price that is set at the competitive level will reduce competitors' incentives to build alternative facilities, if and when this becomes feasible. *See* AREEDA & HOVENKAMP, *supra* note 242, para. 771b.

80. *The Size of Sunk Costs Is a Significant Factor in Determining the Likelihood That Competitors Will Enter.* Sunk costs are important for several reasons. Larger fixed[266] and sunk costs imply that fewer firms are able to survive profitably in the industry.[267] When combined with scale economies, high sunk costs increase the entrants' concern that the incumbent will lower its prices in response to entry, possibly to unprofitable levels for both incumbents and entrants. Large sunk costs also increase the cost of failure, so if there is a substantial risk of failure, entrants may be reluctant to take the risk, and investors may be reluctant to finance entry.[268] The size of the sunk costs figures prominently in the HMG, with special analysis reserved for "committed entry," which is entry requiring significant sunk costs.[269]

81. *Costs Incurred To Enter a Market May Not Be a Barrier to Entry.* A cost incurred by an entrant upon entry, even if fairly significant, may not be a barrier to entry if it creates no cost disadvantage relative to the incumbent, does not generate a minimum viable scale that is too large for the entrant to achieve, and does not significantly raise the cost of failure and exit. Thus, to determine whether initial entry costs

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[266] Fixed costs are costs that do not vary with the level of output. *See* CARLTON & PERLOFF, *supra* note 244, at 28.

[267] *See* Nahata & Olson, *supra* note 244, at 236-23; SUTTON, *supra* note 244, at 8-11 and ch. 2.

[268] *See* HMG § 3.3.

[269] The HMG distinguish between uncommitted and committed entrants. Firms that are able to respond to a "small but significant and nontransitory" price increase within one year and with no significant sunk costs of entry and exit are considered uncommitted entrants, and treated as participants in the relevant market. HMG § 1.32. Committed entry requires significant sunk costs of entry and exit. A significant sunk cost is one that would not be recouped within one year of the commencement of the supply response, assuming a "small but significant and nontransitory" price increase in the relevant market. *Id.*

are a likely deterrent to entry, the economics literature considers, among other things: whether the incumbent had to incur the same costs; how large the costs are; whether the costs are sunk; the likelihood of success in entry; and the size of the scale economies and the likely share of the markets entrants can expect to take. Entrants are unlikely to be deterred by smaller, transient entry costs that are recoverable and that do not raise the minimum viable scale above the typical market share they can expect.[270]

82. *Some Barriers to Entry Are Not Harmful.* Not all barriers to entry are harmful to competition or consumers. Some barriers are the result of firms' attempts to develop new technologies and improve their efficiencies, and the barriers provide the appropriate reward for their innovative activity.[271] For example, patent protection is a powerful barrier to entry that denies new entrants the legal right to take advantage of the patent holder's research. But patent protection provides an incentive to invest in research that would otherwise be diminished if the innovator did not expect to reap monopoly profits from the innovation, at least for a period of time.[272]

83. *Incumbents' Behavior Can Influence Whether Entrants Will Want To Enter.* The extensive literature on strategic behavior and deterrence examines how incumbents, through

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[270] GREER, *supra* note 244, at 241-46; STIGLER, *supra* note 241, at 67-70.

[271] The idea that barriers to entry and high market concentration are not always a concern to be combated with antitrust enforcement is an important point stressed by Stigler, Posner, and others in the "Chicago School." *See* VISCUSI, VERNON, & HARRINGTON, *supra* note 240, at 156; Weizsacker, *supra* note 241, at 399-400; Baker, *supra* note 241, at 5-6. *See generally* Posner, *supra* note 241.

[272] *See* CARLTON & PERLOFF, *supra* note 244, at 505-13; Qwest Haring & Shooshan Paper at 8-9.

present and future actions, could prevent entry.[273] For example, in assessing whether incumbents can profit from a price rise, the HMG do not assume that retail prices will remain elevated after entry occurs, but rather take into account the possibility that incumbents will lower prices in response to entry, thus making the entry less rewarding for new competitors.[274]

d. Interpretation of the "Impair" Standard

84. We find a requesting carrier to be impaired when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic. That is, we ask whether all potential revenues from entering a market exceed the costs of entry, taking into consideration any countervailing advantages that a new entrant may have. As explained in detail below, this granular analysis is informed by consideration of the relevant barriers to entry, as well as a careful examination of the evidence, especially marketplace evidence showing whether entry has already occurred in particular geographic and customer markets without reliance on the incumbent LECs' networks but instead through self-provisioning or reliance on third-party sources.[275]

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[273] *See* SHY, INDUSTRIAL ORGANIZATION, *supra* note 250, at 186-206; TIROLE, *supra* note 244, at 314-21; GREER, *supra* note 244, at 305.

[274] *See* HMG § 3.3.

[275] *See* Qwest Comments at 11 ("But, of course, there is no universal, magic formula by which the Commission or anyone else can assign weights to various factors and arrive at the answer as to whether a particular element meets the 'impair' standard and should be unbundled. The basic question is whether CLECs can feasibly provide service and meaningfully compete without access to a particular type of facility."); BellSouth Reply at 12-13 ("Once the UNE market is properly defined, impairment should be tested by asking whether a reasonably efficient CLEC retains the ability to compete even without access to the UNE."); BellSouth Reply, Attach. 2, Declaration of Howard A. Shelanski, at para.

(i) Types of Barriers to Entry

85. As suggested by the summary of economic and legal literature above,[276] there are different kinds of barriers to entry. We describe in this subpart which barriers we consider relevant to the impairment analysis. We also examine whether unbundling can address the impairment caused by these barriers. We focus on the barriers described below because we find that they are the most likely to create "impairment," that there is general recognition of the importance of these barriers in the economics literature described above and the HMG, and that they comport with our understanding of the characteristics of the telecommunications industry. We recognize, as did the *USTA* court, that at bottom all these barriers can be expressed in terms of costs, and thus to the extent described throughout this section, cost differences remain relevant to the impairment analysis.[277] Throughout our application of the impairment standard to individual elements, we ask whether

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2 (BOC Shelanski Reply Decl.) (also attached to SBC Reply and Verizon Reply) ("As an economic matter, impairment must at the very least mean that CLECs suffer some disadvantages relative to the ILEC that are sufficiently great that they could tip to the negative a rational CLEC's decision about whether or not to enter a local exchange market."); Letter from William P. Barr, Executive Vice President and General Counsel, Verizon, to Michael K. Powell, Chairman, FCC, CC Docket No. 01-338 at 3 (filed Oct. 16, 2002) (Verizon Oct. 16, 2002 *Ex Parte* Letter) ("The key to the impairment analysis therefore is whether an entrant can, over time using its own facilities, profitably serve less than the entire market."); Letter from James C. Smith, Senior Vice President, SBC, to Michael K. Powell, Chairman, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. 1 at 5 (SBC Jan. 14, 2003 *Ex Parte* Letter).

276 *See supra* Part V.B.1.c.

277 *See USTA*, 290 F.3d at 426 ("Of course any cognizable competitive 'impairment' would necessarily be traceable to some kind of disparity in cost."); *see also, e.g.*, WorldCom Reply at 13; Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 2 (filed Oct. 23, 2002) (WorldCom Oct. 23, 2002 *Ex Parte* Letter).

the sum of these barriers is likely to make entry uneconomic, taking into account available revenues and any countervailing advantages that a requesting carrier may have.[278] Our analysis does not rest solely on the existence of cost disparities, but instead is based on determining whether entry would be profitable without the UNE in question. Therefore, the existence of cost disparities does not necessarily require a finding of impairment, but it can significantly affect our analysis through its impact on an entrant's ability to enter.[279]

86. Before discussing relevant barriers to entry, however, we note that the telecommunications industry is replete with the kinds of barriers described in the economics discussion above. For example, facilities-based entry into the telecommunications market requires a great deal of capital for equipment, network construction, and operating costs while customers are gradually added to an entrant's network.[280] The

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[278] *See, e.g.*, Verizon Oct. 16, 2002 *Ex Parte* Letter at 5 (urging the Commission to take into account any countervailing advantages, such as being able to sell other services, avoid costs, achieve qualitative advantages unavailable to the incumbent LEC, cherry-pick profitable customers or markets, and use more efficient equipment and network architectures); *see also* BellSouth Comments at 25; Verizon Comments at 58; BellSouth Reply at 10; Verizon Reply at 42-43; WorldCom Reply at 18-19 (noting that any competitive LEC advantages are outweighed by disadvantages); BellSouth Reply, Reply Declaration of National Economic Research Associates, Inc. (NERA Reply Decl.) at paras. 70-74; BOC Shelanski Reply Decl. at para. 3 (noting that new entrants may have advantages of more advanced equipment, lower labor costs, and the ability to serve larger areas or to market selectively to more attractive markets). We recognize that a precise calculation of a competitive LEC's advantage is difficult or impossible, but we attempt to make reasonable deductions through our examination of marketplace and other evidence. *See* AT&T Willig Reply Decl. at para. 57.

[279] *See also infra* para. 112.

[280] While we acknowledge that the telecommunications industry is capital-intensive, we will not base our impairment analysis on competitors' current ability to access capital markets, as suggested by

capital requirements are exacerbated by the length of time—months or years—that it can take before investments start to turn a profit owing to the pace of construction, the difficulties of luring customers away from incumbent LECs, and the need to invest in a great deal of equipment before serving the first customer.[281] The kinds of equipment needed to provide that service also pose barriers in the form of very high fixed costs, many of which are sunk. While switches and other "intelligence" equipment can be moved from place to place, construction of wireline transmission facilities is literally "sunk"—once invested in, it cannot be moved, even if customer demand patterns change. In addition, producing telecommunications services requires very substantial economies of scale and scope. With these facts in mind, we explain how we will analyze barriers to entry in the telecommunications market—including scale economies, sunk costs, first-mover advantages, and absolute cost

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some commenters. *See* CompTel Comments at 65-71; Covad Comments at 15-16; CompTel Reply at 6; *see also* Allegiance Reply at 3, 14-18. *But see* Verizon Reply at 135-36; BellSouth NERA Reply Decl. at para. 74. We recognize that today's market conditions make access to capital more difficult—and thus self-provisioning more difficult—than it may have been several years ago. But because the markets can change quickly, an impairment analysis that hung on the current state of the capital markets, and in particular on short-term fluctuations in access to capital, would either result in our rules quickly becoming out-of-date, or require frequent review that would contribute to market uncertainty. However, as part of the analysis to determine whether entry is economic, we recognize that a relevant factor is the cost of capital to competitors. Our impairment analysis will therefore consider the current and likely prospective cost of capital, based on our expectations of the availability and price of capital in the long-run.

[281] *See, e.g.*, BTI Comments at 9 (noting that competitive LECs must amass a customer base before attracting private equity); Illuminet Comments at 8 (pointing out that "[t]he construction and operation of a stand-alone SS7 signaling system and the data bases necessary for provision of many services is a complex and very capital intensive undertaking which may serve as a barrier to entry for smaller firms.").

advantages—and we explain our approach to unbundling as a means of overcoming certain barriers to entry.

87. *Scale Economies.* Scale economies, particularly when combined with sunk costs and first-mover advantages (described just below), can pose a powerful barrier to entry.[282] If entrants are likely to achieve substantially smaller levels of sales than the incumbent, then with scale economies their average costs will be higher than those of the incumbent, putting them at a potentially significant cost disadvantage to the incumbent. Profitable entry may not be possible if retail prices are close to the incumbent's average costs. The greater the extent and size of the scale economies throughout the range of likely demand, the higher the barrier they pose.[283] By

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[282] *See* AT&T Reply at 38; AT&T Willig Reply Decl. at para. 19; BellSouth NERA Reply Decl. at para. 75 (urging the Commission not to unbundle all elements because of the possibility of scale economies posing a barrier); Qwest Reply at 9-10; Qwest Farrell Reply Decl. at para. 12 ("If an element displays only ordinary economies of scale, the Commission should not require its unbundling unless that element also exhibits certain *additional* features that (perhaps in conjunction with the scale economies) create true entry barriers .... Such features might include large sunk costs relative to recurring costs, low rates of innovation, and high costs relative to complements (other network elements)."); Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene Dortch, Secretary, FCC, CC Docket No. 01-338, Attach. at 2, 4 (filed Jan. 10, 2003) (AT&T Jan. 10, 2003 *Ex Parte* Letter); *see also* WorldCom Reply at 14-15 (noting that incumbent LECs derive significant and relevant cost advantages from their economies of scale).

[283] *See supra* note 259. Scale economies are necessarily more of a hurdle for small competitive LECs, which tend to serve fewer customers.

We recognize, as did the *USTA* court, that if scale economies are present over the entire relevant market, the element may be "one for which multiple, competitive supply is unsuitable," such that unbundling could be appropriate to avoid wasteful duplication of the facility. *See USTA*, 290 F.3d at 427 (citing 2 KAHN, *supra* note 259, at 119); *see also, e.g.*, Mpower Reply at 11 (arguing that competitive LECs should not have to replicate the incumbent LECs' networks unnecessarily). We do not agree that *USTA* requires us to limit unbundling to those situations only

contrast, scale economies are less of a barrier to entry if average costs reach a low point or begin to increase at some level of production less than total market demand, particularly if that level of production is one that a new firm can reasonably expect to achieve.[284] Thus, we will not find scale economies that typically exist for any entrant into any industry to pose a barrier, when they have not typically blocked such entry.[285] Indeed, the HMG ask whether a new

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where an element is wholly "unsuitable for competitive supply." *See, e.g.*, Qwest Reply at 9 (quoting *USTA*, 290 F.3d at 427). Rather, *USTA* urges us to consider the cost characteristics of elements and ensure that we do not mistakenly equate just any cost disparity with impairment. *See USTA*, 290 F.3d at 427 ("[C]ost comparisons of the sort made by the Commission [in the *UNE Remand Order*], largely devoid of any interest in whether the cost characteristics of an 'element' render it at all unsuitable for competitive supply, seem unlikely either to achieve the balance called for explicitly by Justice Breyer or implicitly by the [Supreme] Court as a whole [in *Iowa Utils. Bd.*] in its disparagement of the Commission's readiness to find '*any*' cost disparity reason enough to order unbundling.") (emphasis in *USTA*).

[284] The lowest output at which average costs reach their minimum (if it exists) is called the Minimum Efficient Scale. *See* CARLTON & PERLOFF, *supra* note 244, at 41.

[285] Similar to our analysis, the *USTA* court noted that "average unit costs are necessarily higher at the outset for any new entrant into virtually any business," *USTA*, 290 F.3d at 427, so scale economies (and cost differences in general) that pertain just to the beginning stages of entry might not be an appropriate factor in an unbundling analysis. *See also* Verizon Oct. 16, 2002 *Ex Parte* Letter at 3 ("A transient cost disparity resulting from differences in scale does not meet the standard for unbundling established by the Act."); *see also* Verizon Comments at 57-58 (arguing that new entrants in any industry routinely lose money for an initial period); AT&T Reply at 32-34, 37 (urging the Commission to find that cost differences and scale economies are relevant so long as they are not "universal" cost disparities, and to find that unbundling does not depend on an element being a natural monopoly); Qwest Reply at 9; SBC Reply at 46; Verizon Reply at 39-40; WorldCom Reply at 14; BOC Shelanski Reply Decl. at para. 2 ("Impairment must consist of more than the usual challenge of playing catch-up that any new entrant into a mature industry faces."), para. 3; Qwest Farrell Reply Decl. at paras. 9-12.

entrant can achieve the minimum viable scale (*i.e.*, the lowest output at which entry is profitable), and thus recognize that scale economies that typically exist for any entrant into any industry do not pose a barrier, when they have not typically blocked entry.[286] In sum, we will consider whether the cost differences caused by scale economies are sufficiently large and persistent, alone or in combination with other factors, to be likely to make entry uneconomic. For similar reasons, we also examine scope economies to determine whether they, too, could contribute to a barrier to entry.

88. *Sunk Costs.* Sunk costs, particularly when combined with scale economies, can pose a formidable barrier to entry.[287] Sunk costs increase risk as well as an entrant's cost of failure, which in turn can increase the cost of capital and discourage entry.[288] In addition, an entrant that knows that an incumbent LEC has incurred substantial sunk costs may be disinclined to enter a market because the incumbent LEC is likely to drop its prices, possibly to levels below average cost,

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[286] *See supra* note 256; *see also* HMG § 3.3; AT&T Nov. 14, 2002 *Ex Parte* Letter, Attach. at 4-7.

[287] *See, e.g.*, AT&T Reply at 38-39; WorldCom Reply at 14-17; AT&T Willig Reply Decl. at para. 20 ("It is basic economics that the need to incur significant sunk costs to deploy facilities that have substantial scale economies establishes a significant entry barrier."), paras. 21-22; AT&T Jan. 10, 2003 *Ex Parte* Letter, Attach. at 4. *Cf.* BOC Shelanski Reply Decl. at para. 4 (urging Commission not to unbundle merely because new entrants face risks); Qwest Farrell Reply Decl. at para. 13.

[288] *See* AREEDA & HOVENKAMP, *supra* note 242, para. 421c; GREER, *supra* note 244, at 240; CARLTON & PERLOFF, *supra* note 244, at 78; VISCUSI, VERNON, & HARRINGTON, *supra* note 240, at 161; HMG § 3.3. Factors that can add to the risk of entry can include whether the entrant will attract enough customers to take advantage of scale economies, whether it can install its equipment at the estimated cost, whether the incumbent will perform its required tasks with the necessary timeliness and quality, and whether the incumbent will respond to entry by dropping its price, as well as legal and regulatory uncertainties about future rules. *Cf., e.g.*, AT&T Jan. 10, 2003 *Ex Parte* Letter, Attach. at 4.

in response to entry.[289] In these ways, sunk costs can act to give significant first-mover advantages to incumbent LECs.[290]

89. *First-Mover Advantages.* First-mover advantages can contribute to the factors described above.[291] First-mover advantages can include preferential access to buildings,[292] access to rights-of-way,[293] the higher risk of new entrants' failure (often exacerbated by high sunk costs), the fact that the incumbent LEC has substantial sunk capacity, operational difficulties faced by an entrant that have already been worked

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[289] *See* SHY, INDUSTRIAL ORGANIZATION, *supra* note 250, at 186-206.

[290] *See UNE Remand Order*, 15 FCC Rcd at 3736-37, paras. 77-80. *Cf.* Allegiance Reply at 13 (noting that requesting carriers incur sunk costs in negotiating arbitration agreements and deploying OSS for the purposes of ordering UNEs).

[291] *See, e.g.*, WorldCom Reply at 17-18; AT&T Willig Reply Decl. at paras. 29-31; AT&T Jan. 10, 2003 *Ex Parte* Letter, Attach. at 6-8.

[292] *See, e.g.*, AT&T Reply at 50 (noting that delays associated with obtaining building access can prevent carriers from providing service); Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. (filed Oct. 25, 2002) (WorldCom Oct. 25, 2002 *Ex Parte* Letter). The Commission has an open proceeding on building access issues. *See Promotion of Competitive Networks in Local Telecommunications Market*s, WT Docket No. 99-217, CC Docket Nos. 96-98, 88-57, First Report and Order and Further Notice of Proposed Rulemaking in WT Docket No. 99-217, Fifth Report and Order and Memorandum Opinion and Order in CC Docket No. 96-98, and Fourth Report and Order and Memorandum Opinion and Order in CC Docket No. 88-57, 15 FCC Rcd 22983 (2000) (*Competitive Networks Order*).

[293] *See, e.g.*, WorldCom Reply at 17-18. Section 224 of the Act provides a detailed scheme for the regulation of access to rights-of-way. 47 U.S.C. § 224. While section 224 provides certain rights to requesting telecommunications carriers, the requesting carriers must still face costs inherent in exercising those rights—costs that the incumbent LEC does not face because it already has access to rights-of-way (for its existing network).

out by the incumbent LEC when it built out its network as a monopolist,[294] consumers' reluctance to switch carriers,[295] and advertising and brand name preference.[296] First-mover advantages often create an absolute cost disadvantage for entrants, which, if large enough, can be a barrier to entry.[297] Some of these factors interact with other factors, such as scale economies, to create barriers to entry.[298] As we consider these factors, we will keep in mind that new entrants may have countervailing advantages (second mover advantages) that

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[294] *See, e.g.*, AT&T Reply at 49-51 (noting that hot cut issues can cause delays and degrade quality of new entrant's service); Letter from Laurence J. Kotlikoff, Professor of Economics, Boston University, to Michael K. Powell, Chairman, FCC, *et al.*, CC Docket Nos. 01-338, 96-98, 98-147, Attach., *in* Letter from Penelope K. Alberg, AT&T, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 22, 2003) (AT&T Jan. 22, 2003 *Ex Parte* Letter). *Cf.* BOC Shelanski Decl. at paras. 30-31 (arguing that costs of combining network elements with non-incumbent facilities should not result in a finding of impairment unless they are so high as to make alternatives economically infeasible).

[295] Consumers' reluctance to switch carriers may be caused by inertia or the high costs of changing.

[296] We note, as well, that requesting carriers may also have very recognizable brand names. *See* BellSouth NERA Reply Decl. at para. 73.

[297] *See, e.g.*, Z-Tel Comments at 26 (noting that incumbent LECs have cost advantages resulting from their historic monopoly position); Allegiance Reply at 14 (noting that requesting carriers incur higher marketing and promotional costs than incumbent LECs).

[298] For example, the incumbent LEC's advantage in advertising or brand name preference can affect an entrant's ability to reach a large enough size to achieve the scale economies necessary to compete with the incumbent. Advertising and brand name preference play a critical role in the HMG in helping to determine whether an entrant can achieve the minimum viable scale. *See* HMG § 3.3 n.33 ("Entrants' anticipated share of growth in demand depends on incumbents' capacity constraints and irreversible investments in capacity expansion, as well as on the relative appeal, acceptability, and reputation of incumbents' and entrants' products to the new demand.").

mitigate some of these factors. For example, competitors are able to design new networks, and may be able to offer higher quality services than incumbent LECs because they are relying on newer equipment.[299] While these countervailing advantages are relevant, they are not necessarily dispositive and do not, without further analysis of the other relevant factors we describe, demonstrate a lack of impairment.[300]

90. *Absolute Cost Advantages.* When the incumbent LEC has absolute cost advantages, other firms may be deterred from entering the market.[301] Particularly if the incumbent LEC is providing service at rates close to its average cost, competitive LECs may find it difficult or impossible to provide service in an economic fashion, because they likely will have higher average costs than the incumbent LEC. Small disadvantages, however, will not pose a barrier unless they raise an entrant's costs above revenues.[302]

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[299] *See* SBC Comments at 36; Verizon Comments at 42; Verizon Reply at 42; BellSouth NERA Reply Decl. at para. 72. Competitive LECs may also have countervailing advantages in being free to avoid unattractive markets. *See* Verizon Reply at 43.

[300] *See* Verizon Reply at 41 (arguing that the incumbent LECs' scale and scope economies are irrelevant because competitors design new networks).

[301] *See, e.g.*, AT&T Jan. 10, 2003 *Ex Parte* Letter, Attach. at 6.

[302] We find support for considering absolute cost advantages, as does Professor Willig, in the HMG. The HMG ask whether potential committed entrants with significantly higher costs than the incumbents can act to hold prices down to pre-merger levels. Similarly, the HMG ask whether potential committed entrants can achieve the minimum viable scale—absolute cost advantages could prevent them from doing so. This is analogous to our question—whether new firms can enter the market to challenge the incumbent LECs. *See* AT&T Nov. 14, 2002 *Ex Parte* Letter, Attach. at 3-4, 7-8; Letter from C. Frederick Beckner, III, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 3 (filed Feb. 12, 2003) (AT&T Feb. 12, 2003 *Ex Parte* Letter); *see also* AT&T Jan. 22, 2003 *Ex Parte* Letter, Attach. *But see* Letter from Cronan O'Connell, Vice President—Federal

91. *Barriers Within the Control of the Incumbent LEC.* We also examine those barriers to entry that are solely or primarily within the control of the incumbent LEC. We look to these barriers because it is within the control of the incumbent LEC to eliminate them or mitigate their effects, which could eliminate the need to unbundle network elements to overcome them. This approach flows from the Act's call for a deregulatory approach where possible.[303] Thus, if there are technical or operational barriers solely or primarily within the incumbent LEC's control,[304] unbundling a network element may give the requesting carrier an opportunity to compete while the incumbent LEC determines whether or how it might cure the provisioning or operational problems. By contrast, factors that are within the control of the new entrant, such as those that might be caused by choosing a particular network architecture, are less likely to result in an unbundling determination to the extent they are truly within the new entrant's control.[305] Accordingly, we disagree with commenters that argue that we should give operational

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Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. (filed Feb. 6, 2003) (Qwest Feb. 6, 2003 *Ex Parte* Letter) (citing A. Douglas Melamed that argues that the HMG do not contain any explicit reference to any absolute cost disadvantages.).

303 *See* Preamble to the 1996 Act.

304 *See, e.g.*, AT&T Reply at 49 ("Delays that would result from denials of access to a UNE materially diminish CLECs' ability to provide service in multiple ways. For example, hot cuts cause delays that have prevented CLECs from serving the overwhelming majority of customer locations . . . .").

305 *See, e.g.*, Letter from Michael E. Glover, Senior Vice President and Deputy General Counsel, Verizon, and Susanne Guyer, Senior Vice President—Federal Regulatory Affairs, Verizon, to William F. Maher, Chief, Wireline Competition Bureau, FCC, at 6-7, *in* Letter from Ann D. Berkowitz, Project Manager—Federal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 10, 2003) (Verizon Jan. 10, 2003 UNE-P *Ex Parte* Letter).

barriers less weight in our impairment analysis and deal with them more directly instead.[306] Rather, we find that some operational difficulties are inherent in the unbundling process, and find it necessary to take them into account in our analysis.

(ii) Evidence of Impairment

92. Parties have submitted an enormous amount of evidence for our consideration in this proceeding. We will address the merits of this evidence in the Parts below regarding the application of the unbundling analysis to specific UNEs. As guidance for our analysis, however, we explain here what kinds of evidence we will find most persuasive in those discussions. We do not adopt a "burden of proof" approach that places the onus on either incumbent LECs or competitors to prove or disprove the need for unbundling.[307] Rather, in the application of our standard, we examine the record evidence in light of the Act's goals to make the best determination regarding the need for unbundling.

93. As we anticipated in the *Triennial Review NPRM*, we agree with commenters that argue that actual marketplace evidence is the most persuasive and useful kind of evidence

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[306] *See, e.g.*, SBC Comments at 36-37.

[307] *See, e.g.*, ALTS *et al.* Comments at 123-24; BellSouth Comments at 18-21; NuVox Reply at 24-25; Letter from Michael E. Glover, Senior Vice President and Deputy General Counsel, Verizon, and Susanne Guyer, Senior Vice President—Federal Regulatory Affairs, Verizon, to William F. Maher, Chief, Wireline Competition Bureau, FCC, at 3, *in* Letter from William P. Barr, Executive Vice President and General Counsel, Verizon, to Michael K. Powell, Chairman, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Dec. 17, 2002) (Verizon Dec. 17, 2002 *Ex Parte* Letter). Because we decline to adopt a "burden of proof" approach, we dismiss as moot that portion of the CompTel Nov. 26, 2001 Joint Conference Petition in which CompTel asks the Commission to impose a burden of proof on parties requesting that a UNE no longer be unbundled. *See* CompTel Nov. 26, 2001 Joint Conference Petition at 13.

submitted.[308] In particular, we are most interested in granular evidence that new entrants are providing retail services in the relevant market using non-incumbent LEC facilities, for two main reasons. First, it is faithful to the Supreme Court's admonition that we consider "the availability of elements outside the incumbent's network" as we apply the "impair" standard.[309] Second, this kind of evidence demonstrates better than any other kind what business decisions actual market participants have made regarding whether it is feasible to provide service without relying on the incumbent LEC. Specifically, this evidence shows us whether *new entrants*, as a practical matter, have surmounted barriers to entry in the relevant market.[310]

94. As we examine the evidence of facilities deployment by competitive LECs in the specific UNE discussions, we will give it substantial weight,[311] but we do not agree that we must

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[308] *See Triennial Review NPRM*, 16 FCC Rcd at 22789, para. 17; *see also* Qwest Comments at 5, 11-12; SBC Comments at 27; Qwest Farrell Reply Decl. at para. 17. *But see* Competitive Enterprise Institute Comments at 2 (urging the Commission not to rely on marketplace evidence in a way that freezes its rules to today's conditions).

[309] *Iowa Utils. Bd.*, 525 U.S. at 389; *see also* Letter from Karen Brinkmann, Counsel for ITTA, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1 (filed Jan. 29, 2003) (ITTA Jan. 29, 2003 *Ex Parte* Letter) (noting that question is whether elements are available from sources other than incumbent LEC).

[310] *Cf., e.g.*, BOC Shelanski Reply Decl. at paras. 8-12 (arguing that, as facilities-based entry increases, unbundling makes less sense because it punishes earlier facilities-based entrants, fails to recognize that the market can only absorb a limited number of firms, and confuses impairment with lack of an attractive business case). We recognize the credibility of econometric analytical techniques, such as regression analysis, when properly specified and conducted.

[311] *See, e.g.*, BOC Shelanski Decl. at para. 17; Qwest Reply at 7-8; BOC Shelanski Reply Decl. at para. 17; Verizon Jan. 10, 2003 *Ex Parte* Letter, Attach. at 2 (arguing that the Commission should presume that alternative facilities can be deployed anywhere); Verizon Dec. 17, 2002

find it conclusive or presumptive of a particular outcome without additional information or analysis.[312] For example, if the marketplace evidence shows that new entrants have deployed a certain type of facility, we will consider the facts as evidence that the barriers to entry in that market for that element are surmountable.[313] In deciding what weight to give this evidence, we will consider how extensively carriers have been able to deploy such alternatives, to serve what extent of the market, and how mature and stable that market is.[314] Thus, while we agree that such evidence may indicate a lack of impairment, we disagree with commenters that argue that such evidence is dispositive or creates a rebuttable presumption of no impairment.[315] We likewise disagree that

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Ex Parte Letter, Attach. at 2 (arguing that no carriers are impaired in markets where competitive entry has occurred), 3 (arguing for presumption of no impairment when facilities at issue have been significantly deployed on a competitive basis). Similarly, we do not presume that if one carrier can enter the market without UNEs, there is no impairment.

312 *See, e.g.*, CompTel Comments at 62 (urging the Commission not to rely on a "simple count" of alternative facilities); GCI Comments at 19; Z-Tel Comments at 23; AT&T Reply at 41-43; NuVox Reply at 23; SBC Reply at 10 ("If competitive facilities already have been deployed, then *ipso facto* they can be deployed. That does not mean that the mere presence of a single competitive facilities in a particular market necessarily precludes a finding of impairment in that market."); Talk America Reply at 18; WorldCom Reply at 29.

313 *Cf.* Qwest Comments at 11-12.

314 *See* CompTel Comments at 72-73 (noting that many carriers that have self-deployed are now bankrupt or have left the market); Covad Comments at 16-18; *see also* Talk America Comments at 22 (noting that industry must mature before facilities-based competition will emerge).

315 *See* BellSouth Comments at 17, 23; Qwest Comments at 11 ("The fact of widespread CLEC entry without reliance on a particular UNE from the incumbent should be deemed to—and clearly does—establish that lack of access to that UNE under section 251 does not impair the ability of a CLEC to provide service."); SBC Comments at 27 ("That some CLECs are in fact providing service over their own facilities

evidence of deployment of alternative facilities or availability of non-UNE alternatives from the incumbent LEC means that a market is "contestable" (as some parties use that term) and therefore *necessarily* shows a lack of impairment.[316] Rather, as just stated, evidence of alternative deployment is probative but not necessarily dispositive of a lack of impairment. And as we explain in detail below, the availability of non-UNE alternatives from incumbent LECs (such as tariffed services or resold retail services) has little bearing on our impairment analysis.[317]

95. Likewise, we disagree that evidence of alternative deployment is irrelevant unless access to those facilities is available to requesting carriers on a wholesale basis.[318] We

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is *dispositive* evidence that carriers are not impaired without access to ILEC facilities.") (emphasis in original); Verizon Comments at 43-46 ("Thus, if some CLECs use non-ILEC facilities to serve particular types of customers or geographic locations, then no CLEC should be considered impaired without access to the relevant UNEs—not just with respect to the specific customers or locations served by the original CLECs, but with respect to all similar customers or locations [as well as where] circumstances are not strictly similar."); Verizon Reply at 38.

[316] *See, e.g.*, Verizon Dec. 17, 2002 *Ex Parte* Letter, Attach. at 2; Letter from Brian J. Benison, Associate Director—Federal Regulatory, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 2 (filed Jan. 29, 2003) (SBC Jan. 29, 2003 *Ex Parte* Letter). *But see* Letter from C. Frederick Beckner III, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 31, 2003) (AT&T Jan. 31, 2003 *Ex Parte* Letter) (arguing that a so-called "contestability" analysis that focuses on the presence of a single alternative on a specific route is insufficient to judge impairment).

[317] *See infra* para. 102.

[318] *See, e.g.*, Covad Reply at 13; *see also* NuVox Reply at 23, 28; Sprint Reply at 19; Talk America Reply at 18-20; Letter from Frederick W. Hitz, III, Director, Rates and Tariffs, General Communication, Inc., to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147, 01-318, 98-56, 98-141 at 4, *in* Letter from John T. Nakahata, Counsel for GCI, to Marlene Dortch, Secretary, FCC,

examine whether wholesale suppliers exist, but our standard is not based solely on whether there is a wholesale market. Instead, we also consider the possibility of self-provisioning. We also disagree that deployment of alternative facilities is necessarily irrelevant unless carriers have been able to serve customers profitably over those facilities.[319] We may consider the extent to which carriers have been able to serve customers profitably, but we recognize that profitability can be affected by many factors other than those we examine for the "impair" analysis, such as whether there is overcapacity in the market,[320] whether facilities-based carriers are still in the process of deploying capacity,[321] and the scope economies involved in providing multiple services.[322]

96. On the other hand, if the marketplace evidence shows that new entrants have not widely deployed a particular kind of facility, we will consider the facts as some evidence that

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CC Docket Nos. 01-338, 96-98, 98-147, 01-318, 96-56, 98-141 (filed Jan. 27, 2003) (GCI Jan. 27, 2003 *Ex Parte* Letter) (arguing that the wholesale market for inputs is the relevant market to consider in the impairment analysis).

[319] *See, e.g.*, AT&T Reply at 42-43.

[320] If more facilities-based carriers have entered the market than can be supported by market demand, creating overcapacity and generating low prices, none of the carriers may be profitable. However, self-provisioning has been demonstrated to be achievable, and with exit of one or more carriers, the remaining carriers may achieve profitability.

[321] There may be clear evidence that carriers are profitably serving customers in a particular area, but have not achieved overall profitability because they are still in the process of expanding their business.

[322] It can be difficult to determine the profitability of an individual product for a multiproduct firm. While the revenues obtained from a particular product may not completely cover the stand-alone costs of providing just that product, they may be sufficient to cover the incremental costs, such that selling the product adds to the firm's profitability. *See* WILLIAM J. BAUMOL, JOHN C. PANZAR & ROBERT D. WILLIG, CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE 351-56 (1988).

barriers to entry in that market for that element are preventing the deployment. We will not generally presume from lack of entry or lack of deployment, however, that there are barriers to entry in the relevant market,[323] or that any barriers cannot be overcome through means other than unbundling without further analysis. For example, the market may be nascent and therefore not mature enough to determine whether the lack of entry demonstrates impairment. We also consider the possibility that past unbundling policies may have discouraged the build-out of facilities. We further recognize that many factors contribute to a new entrant's decision where to place its facilities, and that new entrants may in some cases simply choose not to enter a particular market. We will not necessarily presume from that lack of entry that unbundling is warranted.[324]

97. We also examine evidence that intermodal alternatives[325] can be used to provide telecommunications service. In appropriate instances, evidence of the deployment of intermodal alternatives informs our judgment on the "impair" factors described above, and in those circumstances we will give weight to deployment of intermodal alternatives in our analysis. Specifically, we consider whether these intermodal alternatives permit a requesting carrier to serve the market, either through self-provisioning or by obtaining

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[323] *See* Verizon Comments at 45, 60-61; SBC Reply at 47 ("To the extent competitive facilities have not been deployed in a particular market, therefore, the Commission must attempt to determine why, and it must differentiate between true impairment and factors that have nothing to do with impairment.").

[324] *See* Qwest Comments at 13; BOC Shelanski Decl. at paras. 4, 42; BOC Shelanski Reply Decl. at para. 25.

[325] By "intermodal," we refer generally to facilities or technologies other than those found in traditional telephone networks. These include, for example, traditional or new cable plant, wireless technologies (satellite, mobile, and fixed), power line (electric grid) technologies, or other technologies not rooted in traditional telephone networks.

capacity on a wholesale basis.[326] We take these alternatives into account for several reasons. First, the Act expresses no preference for the technology that carriers should use to compete with the incumbent LECs. Second, we do not want to prejudice market participants' business decisions about whether to deploy alternative facilities by basing our unbundling rules on the presence or absence of any certain technology. Third, in some instances, the presence of intermodal alternatives can be just as probative of a lack of impairment as the presence of traditional wireline "telephone" deployment. The fact that an entrant has deployed its own facilities—regardless of the technology chosen—may provide evidence that any barriers to entry can be overcome. This approach is consistent with *USTA*'s admonition that we should consider intermodal competitors as relevant to our analysis.[327] Just as with regard to the deployment of new traditional facilities, however, we do not find the presence of intermodal alternatives dispositive in our impairment analysis,[328] as some commenters suggest.[329] We also disagree

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[326] Many commenters have urged us to take services provided over intermodal alternatives into account. *See* Verizon Oct. 16, 2002 *Ex Parte* Letter at 4 ("In determining whether an element meets the standard for unbundling, the Commission must consider the full range of technologies by which that element's *function* could be performed.") (emphasis in original); *see also* Alcatel Comments at 17-18; Qwest Comments at 6-8, 15; USTA Comments at 4-5; Verizon Comments at 46-51; BOC Shelanski Decl. at para. 43; AT&T Reply at 57 ("[T]he Commission must consider whether substitute services that are offered outside the ILECs' networks have led to the profitable provision of service by multiple providers . . . ."); Qwest Reply at 16-17; BOC Shelanski Reply Decl. at para. 23; Qwest Farrell Reply Decl. at para. 18. *But see* Moline and CCG Comments at 8-11 (urging Commission not to give too much weight to intermodal competition); Sprint Comments at 12-13 (arguing that even where intermodal alternatives are available, unbundling may be necessary to promote robust competition); NuVox Reply at 21-22.

[327] *See USTA*, 290 F.3d at 429.

[328] *See supra* para. 172.

with commenters that suggest that deployment of intermodal alternatives is irrelevant if the facilities are not available to requesting carriers on a wholesale basis,[330] for reasons discussed in the preceding paragraphs. As we evaluate evidence of intermodal deployment, we will consider to what extent services provided over these intermodal alternatives are comparable in cost, quality, and maturity to incumbent LEC services.[331]

98. In some cases, the differences between intermodal alternatives and traditional wireline deployments may reduce the weight we give to the deployment of alternatives. For example, some carriers relying on intermodal alternatives have not needed to overcome the same kinds of barriers as new entrants that start without any facilities at all. Cable telephony and cable modem service, for example, have developed because cable operators have been able to overlay additional capabilities onto networks that they built for other purposes, often under government franchise, and therefore have first-mover advantages and scope economies not available to other new entrants, which lower their incremental

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[329] *See, e.g.*, Qwest Comments at 6-9; Verizon Comments at 46-48.

[330] *See* ALTS *et al.* Comments at 39-40; ASCENT Comments at 26; UNE-P Coalition Comments at 19; *see also* Allegiance Reply at 21; ASCENT Reply at 13; Covad Reply at 13. *But see* Qwest Reply at 16-17. We also address this argument in more detail *infra* para. 112. We also disagree that intermodal alternatives should not be considered because "CLECs desire to offer wireline service, not wireless service or cable telephony." *See, e.g.*, ASCENT Reply at 13. As explained above and as the *USTA* decision explained, we look at alternatives for whether they provide comparable service, not the same technology. *See USTA*, 290 F.3d at 429.

[331] *See* Allegiance Reply at 24-25. Our analysis is necessarily based on the current technical capabilities, economic characteristics, and patterns of use of intermodal alternatives. These facts are likely to change going forward as these and other technologies develop. The changes may affect future impairment determinations.

costs of providing the additional services.[332] Similarly, we recognize that some intermodal technologies will only be available to one or a few firms due to legal restrictions, such as spectrum licensing requirements, that may limit the number of firms that can use a given technology in one geographic area. When an intermodal technology is limited in availability to only one or a few telecommunications carriers—either because of the historical economic characteristics of their providers or legal restrictions—we will consider whether that technology contributes to a wholesale market in accessing the customer. We may give less weight to intermodal alternatives that do not contribute to the creation of a wholesale market in accessing the customer or do not provide evidence that self-deployment of such access is possible to other entrants. In addition, if the record evidence shows that there are limitations on the number or types of customers that can be served by a particular technology, we will consider whether an entrant could use this technology profitably to target only those customers that can be served by the alternative technology.

99. We will also give consideration to cost studies, business case analyses, and modeling if they provide evidence at a granular level concerning the ability of competitors economically to serve the market without the UNE in question. While these are useful tools for analysis, we may give this evidence less weight than actual marketplace evidence for several reasons. First, as stated above, actual marketplace evidence shows whether new entrants, as a practical matter, have surmounted barriers to entry in the relevant market. Second, these studies are generally based on estimates of costs and revenues that can be difficult to verify, and thus are more easily manipulated by the advocates in this proceeding. Third, there may be issues and factors that affect

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[332] *Cf.* AT&T Reply at 34 (arguing that the presence of a cable competitor has *no* relevance to the impairment analysis).

a competitor's ability to enter that are difficult to foresee (such as unexpected costs, delays, revenue streams, or new niche products). Thus, there will be uncertainty concerning the existence of such factors when examining these studies, while examination of actual marketplace evidence will reveal whether such factors exist and are significant.

100. In conducting our impairment analysis, we recognize that decisions on whether to enter are based not just on the cost of entry but also on the revenues to be gained.[333] Thus, we will consider, where provided, evidence of the revenue opportunities available to those carriers that provide services over the relevant facilities, keeping in mind that competitors are able to choose which markets to enter and to avoid unattractive markets.[334] We consider *all* the revenue opportunities that a competitor can reasonably expect to gain over the facilities, from providing all possible services that an entrant could reasonably expect to sell,[335] taking into account limitations on entrants' ability to provide multiple services, such as diseconomies of scope in production, management, and advertising.[336]

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[333] *See, e.g.*, AT&T Comments at 36; CompTel Comments at 71 (urging the Commission to take profitability into account in the analysis of self-provisioning); Talk America Comments at 15 (noting that financial viability depends on the difference between retail rates and the cost of providing service).

[334] *See USTA*, 290 F.3d at 423 (urging the Commission to consider high retail rates as they relate to revenue opportunities); Verizon Comments at 42.

[335] *See* Verizon Comments at 57.

[336] Diseconomies of scope are the opposite of economies of scope. Diseconomies of scope occur when the cost of producing a good rises when a firm attempts to produce a second good. *See* John C. Panzar, *Technological Determinations of Firm and Industry Structure*, *in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 16 (Richard Schmalensee and Robert Willig, eds., 1989).

101. In our impairment analysis, we examine both whether new entrants can provide retail services over non-incumbent facilities and whether new entrants can provide wholesale services over non-incumbent facilities.[337] Rather than providing the retail services itself,[338] a wholesaling carrier will be providing service to other carriers that will provide, individually or as a group, the range of services that customers want, at market-based prices. Thus, the wholesale carrier's sales and revenues are dependent on the services the retail carriers will demand and the prices they are willing to pay, which in turn depend on the revenues they gain from the retail services provided.[339] Wholesale carriers may not be limited by the same factors that limit the likely market share of carriers providing retail service, since they will be able to serve multiple carriers' needs. Thus, if advertising or diseconomies of scale or scope limit individual carriers' market shares and product lines, which could make self-deployment of facilities uneconomic, a wholesale carrier may be able to serve multiple carriers and overcome these limits in the aggregate.

102. We reaffirm our prior conclusion in the *UNE Remand Order* to afford little weight to evidence that requesting carriers are using incumbent LEC tariffed services as relevant to our unbundling determination.[340] Specifically, many

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[337] The wholesale provision of services would not be limited to exchange access services, but would include all access services. *See infra* Part V.B.2.c.

[338] This implies the carrier is vertically integrated, providing both wholesale and retail service itself. The product it provides from its upstream wholesale service is then combined with other inputs to provide downstream retail service.

[339] The demand for the wholesale carrier services is therefore a derived demand from retail sales.

[340] *See UNE Remand Order*, 15 FCC Rcd at 3732-34, paras. 67-70; *see also* AT&T Comments at 38-39; ATTWS Comments at 14-16;

commenters have urged us to find that requesting carriers are not necessarily impaired if they can use incumbent LEC resold or retail tariffed services, such as special access, to provide their retail service.[341] We decline to adopt this position. We conclude that it would be inconsistent with the Act if we permitted the incumbent LEC to avoid all unbundling merely by providing resold or tariffed services as an alternative.[342] Such an approach would give the incumbent LECs unilateral power to avoid unbundling at TELRIC rates simply by voluntarily making elements available at some higher price. Because the Act contains three modes of entry, we cannot find an approach that would so easily remove one mode from the Act to be a reasonable reading of Congress's intent.[343] Indeed, such an approach would also be contrary to the Act's requirement that unbundled facilities—facilities without which serving the market becomes uneconomic—should be priced at cost-based rates[344] and our determination that TELRIC is the appropriate methodology for determining those rates—an approach to rates that the Supreme Court has affirmed.[345] In addition, resold and retail tariffed offerings present different opportunities and risks for the requesting carrier than the use of UNEs or non-incumbent LEC

CompTel Comments at 64-65; Allegiance Reply at 30-31; AT&T Reply at 56.

341 *See* SBC Comments at 27-29; Verizon Comments at 51-55; BOC Shelanski Reply Decl. at para. 21; Verizon Dec. 17, 2002 *Ex Parte* Letter, Attach. at 8-10.

342 *UNE Remand Order*, 15 FCC Rcd at 3732-33, para. 67.

343 *See also Iowa Utils. Bd.*, 120 F.3d at 809-10 (rejecting a similar interpretation urged by incumbent LECs that would have given them the freedom to circumvent the unbundling obligations of section 251(c)(3) by choosing to offer network elements as services).

344 *See* 47 U.S.C. § 252(d)(1)(A)(i).

345 *See Verizon*, 535 U.S. at 497-528.

alternatives.[346] Also, forcing requesting carriers to rely on tariffed offerings would place too much control in the hands of the incumbent LECs, which could subsequently alter their tariffs and thereby engage in a vertical price squeeze.[347]

103. Likewise, we disagree with commenters that argue that the presence of a tariffed offering that is subject to substantial competition in the retail market should preclude an impairment finding with respect to the UNEs used to provide the relevant service.[348] As explained in greater detail in Parts V.B.1.d(iii) and V.B.2.c below, our unbundling analysis considers service, but does not examine whether the relevant market is competitive as part of the unbundling analysis.

104. Similarly, as we found in the *UNE Remand Order*,[349] we do not find that wherever incumbent LECs have received pricing flexibility, we should not unbundle the relevant network elements.[350] Our pricing flexibility rules go to protecting consumers from anticompetitive pricing, which is not the same as our unbundling rules, which go to asking whether entry into a market is economic and to serving a host of statutory goals beyond protecting consumers from anticompetitive pricing. Thus, the "impair" test and the test for pricing flexibility are different, reflecting these different aims. Moreover, our unbundling analysis is far more granular, in many cases, than our pricing flexibility analysis.

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346 *UNE Remand Order*, 15 FCC Rcd at 3733, para. 68.

347 *UNE Remand Order*, 15 FCC Rcd at 3733, para. 69. SBC, for one, points out that the Commission could evaluate tariffed services and refuse to consider as alternatives those that it finds to be in place merely to avoid the unbundling rules, but this misses the points described in the text. *See* SBC Comments at 28-29.

348 *See, e.g.*, Verizon Comments at 53.

349 *See UNE Remand Order*, 15 FCC Rcd at 3756-57, paras. 131-32, 3849, para. 341 n.673.

350 *See* Verizon Comments at 53-54; Verizon Dec. 17, 2002 *Ex Parte* Letter, Attach. at 6-8.

This is because competition in some parts of a market may be sufficient to constrain prices, but insufficient to demonstrate a lack of impairment. In the discussions of particular elements below, we consider evidence that competitors have collocated or deployed alternative facilities as highly relevant to our impairment analysis, but we will not presume that a grant of pricing flexibility necessitates a finding of lack of impairment.

(iii) Rejection of Other Approaches to Impairment

105. In this Part, we explain why we reject other approaches to impairment that commenters have put forward.

106. *UNE Remand Impairment Approach.* We disagree with commenters that press us to maintain the approach to unbundling that the Commission adopted in the *UNE Remand Order*.[351] We recognize that there are benefits to keeping a single regulatory standard in place if doing so can provide market certainty and predictability. The *UNE Remand* approach, however, has proven overbroad in some instances, and was rejected by the D.C. Circuit as insufficiently rigorous.[352] We could thus not maintain it, even if we found a good policy reason to do so.[353] While we no longer rely on, or

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[351] *See, e.g.*, ALTS *et al.* Comments at 27-28; ASCENT Comments at 15-18; AT&T Comments at 34-40; Eschelon Comments at 7; McLeodUSA Comments at 4; NewSouth Comments at 48-50; NuVox Comments at 20, 22-33; Ohio Commission Comments at 5; Progress Telecom Comments at 16; Sprint Comments at 7-8; UNE-P Coalition Comments at 16-17, 20-21; WorldCom Comments at 50-52; UNE-P Coalition Reply at 15-17; Mpower Oct. 11, 2002 *Ex Parte* Letter, Attach. at 4. *But see* Verizon Comments at 55-61.

[352] *See USTA*, 290 F.3d at 415.

[353] We do not address the comments of parties that focused on the *UNE Remand* factors in their opening comments, before the D.C. Circuit issued its *USTA* decision, except to the extent those comments are still relevant after *USTA*.

formally examine, the five *UNE Remand* factors as a basis for our analysis of impairment, these factors still play a role in our analysis as they relate to the barriers to entry we have identified above.[354]

107. *Essential Facilities Doctrine.* As explained above in Part V.B.1.c, we use the essential facilities doctrine as a guide in formulating our "impair" standard, but we do not adopt the essential facilities doctrine as our standard.[355] First, as in prior orders, we point out that Congress could have codified the essential facilities doctrine in section 251(d)(2), but chose not to. Indeed, legislative history shows that Congress was aware of the essential facilities doctrine when it enacted section 251(d)(2), yet chose to use the ambiguous word "impair" rather than suggesting that the existing law of essential facilities should determine which network elements should be unbundled.[356] Second, the structure of the Act itself suggests that we cannot equate impairment with the essential facilities doctrine. The essential facilities doctrine is more analogous to the "necessary" standard of section 251(d)(2)(A) than to the "impair" standard of section 251(d)(2)(B). That is, before a court would require an owner to share its facility with competitors, it would determine that the facility was "essential" for competition. "Essential" appears comparable

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354 *See, e.g.*, WorldCom Reply at 11-12 (urging Commission to keep *UNE Remand* standard with modifications to comport to *USTA*).

355 *Cf.* BellSouth NERA Reply Decl. at para. 58 ("[I]mpairment cannot occur when a network element does not meet the definition of an essential facility."). *But see* AT&T Reply at 35; NewSouth Reply at 9-10; WorldCom Reply at 19-20; Z-Tel Reply at 57-60.

356 *See* 137 Cong. Rec. S7054, S7058 (daily ed. June 5, 1991 (reading S. 1200, 102d Cong. § 202 (1991)); *see also UNE Remand Order*, 15 FCC Rcd at 3728-30, paras. 57-61 (discussing essential facilities doctrine).

to "necessary."[357] To equate "essential" with "impair" would collapse the Act's two unbundling standards, rather than respect the dichotomy that Congress established. Finally, to adopt the essential facilities doctrine would disregard the fact that Congress chose to use a different standard. That is, where Congress wanted to address points that are analogous to parts of the essential facilities doctrine, it did so. For example, once a court determines that a facility is "essential," it must decide how it should be shared and at what price. Congress already put these mechanisms in place through the sharing requirement of section 251(c)(3) and the pricing requirements of section 252(d)(1). Indeed, Congress's requirements that facilities be shared at cost-based rates, and on a nondiscriminatory basis, are potentially more rigorous than the requirements that most courts would impose on the owner of an essential facility.[358] This additional departure from the essential facilities doctrine lends support to our conclusion that Congress did not intend for us to read it into the "impair" standard.

108. However, we incorporate important lessons from scholars who have examined the essential facilities doctrine into our interpretation of "impair." As the D.C. Circuit has noted, the essential facilities doctrine can "offer useful concepts for agency guidance when Congress has *directed* an agency to provide competitor access in a specific industry."[359] Indeed, scholars have noted the drawbacks of mandatory sharing of facilities in their criticisms of the essential facilities

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[357] Thus, a significant cost disadvantage that hinders the ability of competitors to enter may be sufficient to trigger a finding of impairment, but may not qualify the facility as essential.

[358] INGO VOGELSANG & BRIDGER M. MITCHELL, TELECOMMUNICATIONS COMPETITION: THE LAST TEN MILES 57 (1997).

[359] *USTA*, 290 F.3d at 427 n.4 (emphasis in original).

doctrine, and we have found these criticisms useful in our standard as explained above.[360]

109. *Market Power Analysis and the Use of Antitrust or HMG Analysis.* We reject the arguments that we should require the unbundling of network elements to remove an incumbent LEC's market power in the retail market and that we should use the HMG to identify market power.[361] The purposes of a market power analysis are not the purposes of section 251(d)(2). While this antitrust analysis attempts to determine whether market participants would be able to exercise market power and raise prices above competitive levels if a merger were consummated, the Act requires only that network elements be unbundled if competing carriers are impaired without them, regardless of whether the incumbent LEC is exercising market power or the unbundling would eliminate this market power. A market power analysis would go to the question of whether an incumbent LEC could raise its retail prices unchecked; the impair analysis asks whether a new entrant can provide its services without the UNE. A market power analysis might be appropriate if the only goal of the Act were to drive prices to cost,[362] but that approach

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[360] *See supra* Part 0.

[361] *See, e.g.*, AT&T Nov. 14, 2002 *Ex Parte* Letter, Attach. at 2; AT&T Jan. 22, 2003 *Ex Parte* Letter, Attach.; AT&T Feb. 12, 2003 *Ex Parte* Letter, Attach. at 2 ("[A]n economically rigorous 'impairment' analysis must assess whether facilities-based entry by competitive carriers (or more generally, entry by competitive carriers without access to unbundled network elements at cost-based prices) will be able to stop the incumbent LECs from exercising market power."). Covad argues that we should always order unbundling in highly concentrated markets (calculated using the Herfindahl-Hirschman Index), presumptively order unbundling in moderately concentrated markets, and not order unbundling in unconcentrated markets. *See* Covad Reply at 8-14; Covad Reply, Reply Declaration of Terry L. Murray (Covad Murray Reply Decl.) at paras. 12-42.

[362] *See* AT&T Nov. 14, 2002 *Ex Parte* Letter, Attach. at 2 ("[T]he Commission should continue to mandate unbundled access to network

disregards the Act's other goals of encouraging the deployment of alternative facilities and new technologies and reducing regulation.

110. We also decline to adopt a standard that equates or hinges a requesting carrier's impairment with an incumbent LEC's market power in the wholesale market for the input in question. Some commenters argue that an incumbent LEC's market power in the wholesale market will permit it to charge prices above cost for that input, thus creating or worsening a cost disadvantage for new entrants.[363] Similar to our reasoning just above, we point out that the Act is not directly aimed at eliminating an incumbent LEC's market power in any particular market, but in identifying new entrants' impairment. While incumbent LECs control wholesale facilities in a manner that often creates market power, we look instead for whether new entrants are impaired without those facilities. Indeed, there may be circumstances where an incumbent LEC has market power with regard to a particular input, but competitors are not impaired without access to the element, so unbundling would not be appropriate and might discourage new entrants from building their own facilities. In addition, an analysis that focused exclusively on the wholesale market would fail to give weight to the possibility or actuality of self-provisioning.

111. *HMG Analysis of Committed Entry.* We disagree with commenters that suggest that we should adopt the HMG's analysis of "committed entry" as our "impair" standard.[364]

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elements to the extent that such access is necessary to drive retail rates towards costs.").

[363] *See, e.g.*, Allegiance Comments at 6-11; Allegiance Reply at 3, 18-20. Allegiance has specifically suggested that we should find impairment unless there are four non-incumbent LEC sources of supply, either self-provisioned or wholesale offerings. *See* Allegiance Comments at 9-10; Allegiance Reply at 3-4.

[364] *See* AT&T Nov. 14, 2002 *Ex Parte* Letter.

The HMG apply a three-pronged test to determine whether committed entry is likely to deter anticompetitive behavior post-merger.[365] Specifically, the HMG consider whether committed entry would be timely,[366] likely,[367] and sufficient[368] in response to a "small but significant and nontransitory" post-merger price increase. Although we recognize a substantial amount of commonality between the HMG's framework for assessing ease of entry and our analysis of entry barriers above,[369] we do not adopt the standards and framework of the HMG for evaluating committed entry.[370] First, in contrast to the HMG, we are not considering whether new competitors will enter the market in response to a "small

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365 HMG § 3.0.

366 The HMG consider entry to be timely if it can have a significant market impact within two years of initial planning. *See* HMG § 3.2.

367 The HMG consider entry to be likely if it would profitable in the long run at pre-merger prices, if those prices are attainable. *See* HMG § 3.3.

368 The HMG consider entry to be sufficient if it will force market prices to their pre-merger levels. *See* HMG §§ 3.0, 3.4.

369 For example, as explained by Professor Willig on behalf of AT&T, the HMG ask whether entry would require significant sunk costs, HMG § 1.32, whether a new entrant could likely achieve a level of sales sufficient to be profitable, HMG § 3.3, and whether a new entrant suffers from absolute cost disadvantages as compared with the incumbent, HMG §§ 1.11, 1.32. And "[i]n short, consistent with established antitrust economics, the *Guidelines* conclude that the greater the magnitude of the fixed and sunk investment and the greater the scope of entry a new entrant needs to achieve unit costs that are comparable to the incumbent's, the less likely that such entry will occur." AT&T Nov. 14, 2002 *Ex Parte* Letter, Attach. at 3-8.

370 *See* AT&T Nov. 14, 2002 *Ex Parte* Letter, Attach.; *see also* Covad Murray Reply Decl. at paras. 43-51.

but significant and nontransitory" price rise,[371] nor do we assume that incumbent LECs will be ceding a portion of the market to competitors due to this price rise. Second, contrary to commenters' urgings as discussed above, our impairment analysis does not share the HMG's goal of determining whether committed entry will check incumbents' market power.[372] Third, the HMG do not take into consideration the other goals we do here—particularly encouraging investment in new facilities by both incumbent LECs and others—or the costs of unbundling that the courts have pointed out to us.[373] Finally, the time horizon of two years in the HMG is a fairly short period compared to the time it is likely to take for full competition to develop in local telecommunications, particularly on a facilities basis.[374] The Act effectively attempts a restructuring of the local telecommunications market, and it often takes decades for a new technology or organizational structure to completely replace the old structure. Building new facilities and networks and developing and delivering new services will take a substantial period of time. We recognize that adopting a standard that has been revised and improved over decades, and subject to much scrutiny in judicial and regulatory proceedings, would have the benefit of providing predictability to our analysis.[375]

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[371] *But see* Covad Murray Reply Decl. at para. 25 (noting that "small but significant" price construct not directly relevant to impairment analysis).

[372] *But see* AT&T Feb. 12, 2003 *Ex Parte* Letter, Attach. at 1 ("[A]ny economically rigorous impairment analysis must determine whether the denial of access to a particular network element at cost-based rates would enable incumbent LECs to exercise market power by charging supra-competitive prices, and . . . the *Guidelines* contain a logical and accepted framework for accomplishing such analysis.").

[373] *See Iowa Utils. Bd.*, 525 U.S. at 428-29 (Breyer, J., concurring); *USTA*, 290 F.3d at 425, 427.

[374] *But see* Covad Murray Reply Decl. at paras. 7, 45.

[375] *See, e.g.*, Covad Reply at 10.

We cannot, however, adopt a standard that does not fit the purposes of the Act.

112. *Cost Disadvantages.* We reject the proposal to find impairment whenever entrants would suffer from a substantial cost disadvantage (such as five percent), regardless of whether entry is still possible.[376] In a related argument, Z-Tel urges us to find impairment when entrants are likely to sell less of their product without the UNE than they would with the UNE—which Z-Tel explains would be a consequence of

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[376] *See, e.g.*, Z-Tel Reply, Declaration of George S. Ford (Z-Tel Ford Reply Decl.) at paras. 26-30, 43-49, 82-83; Letter from Donna Sorgi, Vice President—Federal Advocacy, WorldCom, to William F. Maher, Chief, Wireline Competition Bureau, FCC, at 2-3, *in* Letter from Gil M. Strobel, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 8, 2003) (WorldCom Jan. 8, 2003 *Ex Parte* Letter); AT&T Jan. 22, 2003 *Ex Parte* Letter, Attach. at 8-9; Letter from Kemal Hawa, Counsel for MetTel and Bridgecom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 8 (filed Jan. 27, 2003) (MetTel Jan. 27, 2003 *Ex Parte* Letter) (noting importance of costs in impairment analysis); Letter from Gil M. Strobel, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1-10 (filed Jan. 27, 2003) (WorldCom Jan. 27, 2003 *Ex Parte* Letter). Some commenters argue that new entrants' cost disadvantages could make entry unprofitable because incumbent LECs will likely lower prices to a level below entrants' costs (but above incumbent LECs' costs). *See, e.g.*, AT&T Nov. 14, 2002 *Ex Parte* Letter, Attach. at 3-4; WorldCom Jan. 8, 2003 *Ex Parte* Letter, Attach. at 1-5; Letter from Joan Marsh, Director, Federal Government Affairs, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 4-5 (filed Feb. 4, 2003) (AT&T Feb. 4, 2003 *Ex Parte* Letter). *But see, e.g.*, BOC Shelanski Reply Decl. at para. 3 ("Importantly, the case for impairment is not made by a showing that CLECs merely face some costs that are higher than the ILEC's corresponding costs."); SBC Jan. 14, 2003 *Ex Parte* Letter, Attach. 2 at 1-5 (arguing that an incumbent LEC cannot lower retail residential rates to keep out competitors because it serves many residential customers at a loss and relies on higher-end customers to make up the difference), Attach. 2 at 1-3.

cost disparities.[377] A cost disadvantage standard would focus on maximizing entry to the detriment of the other goals of the Act, such as innovation, deployment of new technologies, and reduced regulation, which goals are most likely to be met through facilities-based competition. Second, entry may be possible despite cost disadvantages, and our "impair" standard takes into account costs as compared with potential revenues.[378] Indeed, unbundling when there are only small cost disadvantages is likely to make it more difficult for facilities-based competitors to compete against entrants relying on TELRIC-priced UNEs,[379] and would skew our

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[377] *See, e.g.*, Z-Tel Comments, Attach. 4, Z-Tel Public Policy Paper No. 5, *Some Thoughts on Impairment: An Economic Analysis of the Impairment Standard of the 1996 Telecommunications Act*; Z-Tel Reply at 21-25; Z-Tel Ford Reply Decl. at paras. 26-30 ("[I]t seems reasonable that to constitute a statutorily cognizable impairment, there must be a small, but significant and non-transitory decrease in the requesting carrier's output."); Letter from Timothy J. Simeone, Counsel for Z-Tel, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. 1 at 5-7 (filed July 24, 2002) (Z-Tel July 24, 2002 *Ex Parte* Letter).

[378] *See, e.g.*, Verizon Oct. 16, 2002 *Ex Parte* Letter at 5 ("If an entrant's cost of providing an alternative element is higher than the incumbent's, but the entrant nevertheless can profitably do so because it can sell other services, avoid other costs, or achieve qualitative advantages in a way that is not available to the incumbent, the element can be supplied competitively and unbundling cannot be required. The question is whether the entrant can provide an overall service that is competitive, not whether the cost of each input matches that of the incumbent.").

[379] UNEs are priced using the TELRIC methodology. *See Local Competition Order*, 11 FCC Rcd at 15812-929, paras. 618-862. TELRIC prices reflect the forward-looking economic cost of the incumbent LEC's facilities, which take into account the scale and scope economies of the incumbent. *Id.* at 15846-47, para. 679. Thus, if scale economies are present, it would be difficult for an entrant with a small market share to achieve costs as low as the TELRIC price. *See also* BellSouth Comments at 12 ("The Commission's TELRIC pricing requirements effectively imposed an upper limit on what facilities-based carriers could charge, without losing customers to non-facilities-based UNE-P carriers."); SBC Reply at 23.

analysis of marketplace evidence away from examining the presence of facilities-based entrants. Thus, we consider cost disadvantages as they reflect the factors described in our impairment standard, but we will consider them to create an impairment only when they are substantial enough to be likely to make entry into a market uneconomic, taking into consideration available revenues and any countervailing advantages that new entrants may have.[380] Similarly, we cannot agree that *any* cost a new entrant faces that is greater than the relevant TELRIC price necessarily demonstrates impairment.[381] The Supreme Court explicitly rejected this as an approach to impairment, criticizing a standard that equates "*any* increase in cost" to impairment.[382] Likewise, the D.C. Circuit criticized the Commission for "rely[ing] on cost disparities that are universal as between new entrants and incumbents in *any* industry."[383]

113. *Wholesale Market for Alternatives to the Incumbent LECs' Networks.* We disagree that we should continue to require unbundling of a network element until a vibrant wholesale market for that element exists, or that a wholesale market is the best evidence of the feasibility of self-

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380 WorldCom Jan. 27, 2003 *Ex Parte* Letter, Attach. at 7 ("Under existing precedent, therefore, the key objective is to determine *when* cost differences translate into impairment, not to adopt an approach unrelated to cost differences.") (emphasis in original).

381 *But see, e.g.*, BellSouth Comments at 25; Qwest Comments at 12-14; Verizon Comments at 58 (urging the Commission not to find impairment based on the cost difference between using alternatives to UNEs and using TELRIC-priced UNEs); Allegiance Reply at 11-12 (arguing that TELRIC does not equate to the incumbent LEC's cost); Qwest Reply at 10-11; Verizon Reply at 40.

382 *Iowa Utils. Bd.*, 525 U.S. at 389 (emphasis in original); *see also* SBC Comments at 34 (arguing that under Supreme Court precedent, cost differentials standing alone cannot constitute impairment).

383 *USTA*, 290 F.3d at 427 (emphasis in original).

provisioning.[384] First, while this approach might ensure that competitors have access—either through wholesale alternatives or access to UNEs—we are concerned that this approach might discourage investment in facilities by competitors. As we have emphasized above in our "impair" standard, one of the goals of the Act, impressed on us by the courts, is investment in facilities by both incumbent LECs and new entrants.[385] Second, as we noted in the *UNE Remand Order*, this approach disregards the possibility of self-provisioning as an alternative to using the incumbent LEC's network, contrary to the Supreme Court's direction.[386] Indeed, with regard to certain elements like switching, self-provisioning is far more common than leasing access from another non-incumbent LEC provider. While the record contains substantial evidence of self-deployment, we have little to no evidence of a wholesale market for switching services from alternate vendors.

114. *Evaluating Impairment Based on the Level of Retail Competition.* We do not adopt a standard that asks whether competition (as opposed to competitive carriers) is "impaired"[387] or base our impairment determination on whether the level of retail competition is sufficient such that

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[384] *See, e.g.*, CompTel Comments at 63-64 (arguing that the existence of a wholesale market is "key evidence" in deciding whether to unbundle an element, and that the absence of such a market is "*prima facie*" evidence that self-deployment is not feasible); UNE-P Coalition Comments at 21; SWCTA Reply at 8; *see also* Covad Reply at 12 (arguing that the Commission should assess the state of the wholesale market in applying an HMG analysis as described *supra* para. 109). *But see* Verizon Jan. 10, 2003 *Ex Parte* Letter, Attach. at 8 (arguing that the Act does not require a wholesale market to exist before finding no impairment for switching).

[385] *See supra* Part V.B.1.a; *see also USTA*, 290 F.3d at 427.

[386] *See UNE Remand Order*, 15 FCC Rcd at 3727, para. 56; *see also Iowa Utils. Bd.*, 525 U.S. at 389.

[387] *See* BOC Shelanski Reply Decl. at para. 11.

unbundling is no longer required to enable further entry.[388] As explained above, evidence of retail competition over non-incumbent LEC facilities informs our analysis of whether competitive LECs are impaired without access to UNEs. But some carriers, for example, suggest that we not require any unbundling in markets where competitors have achieved a particular market share, where competitors have a certain number of collocations, or where consumers have a choice of facilities-based providers.[389] We decline to determine impairment based on a certain level of retail competition because section 251(d)(2) requires us to ask whether requesting carriers are "impaired," not whether certain thresholds of retail competition have been met.[390] While it is true that retail competition is a goal of the 1996 Act, it is not the only goal, and a standard that focused exclusively on retail competition would do so at the expense of Congress's other goals, such as investment in new facilities. Moreover, the relationship between retail competition and unbundling is complex. In many instances, retail competition depends on the use of UNEs and would decrease or disappear without those UNEs; thus, a standard that takes away UNEs when a

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[388] *Cf.* ITTA Jan. 29, 2003 *Ex Parte* Letter, Attach. at 3-4 (urging Commission not to adopt a multiple-competitor standard); Letter from Ann D. Berkowitz, Project Manager—Federal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 2 (filed Jan. 14, 2003) (Verizon Jan. 14, 2003 *Ex Parte* Letter).

[389] *See, e.g.*, Letter from Karen Brinkmann, Counsel for ACS, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 13-14 (filed Jan. 6, 2003) (ACS Jan. 6, 2003 *Ex Parte* Letter); Letter from Karen Brinkmann, Counsel for ACS, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Jan. 16, 2003) (ACS Jan. 16, 2003 *Ex Parte* Letter). *But see* GCI Jan. 27, 2003 *Ex Parte* Letter, Attach. at 4, 7-8.

[390] *See* 47 U.S.C. § 251(d)(2).

retail competition threshold has been met could be circular.[391] While evidence of retail competition over non-incumbent LEC facilities is highly relevant to our impairment analysis as explained above,[392] retail competition that relies on incumbent LEC facilities—whether UNEs, resale, or tariffed services—does less to inform our impairment analysis.[393] We explain in greater detail below why we do not conduct an analysis of individual services, and the levels of competition for those services, below.[394]

115. *Impairment of Individual Requesting Carriers or Carriers Pursuing a Particular Business Strategy.* We will not, as some commenters urge, evaluate whether individual requesting carriers or carriers that pursue a particular business strategy are impaired without access to UNEs.[395] We

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391 *See, e.g.*, GCI Jan. 27, 2003 *Ex Parte* Letter, Attach. at 1.

392 *See supra* Part V.B.1.d.(ii); Verizon Jan. 14, 2003 *Ex Parte* Letter, Attach. at 2. Indeed, retail competition from multiple market participants that do not rely on incumbent LEC facilities at all may well demonstrate, as explained above, that barriers to entry in the relevant market at not so high as to make entry uneconomic.

393 *See supra* para. 102.

394 *See infra* Part V.B.2.c.

395 *See, e.g.*, ALTS *et al.* Comments at 37-38; ACS Comments at 2-8 (arguing that that Commission must determine whether each competitor—including small competitive LECs—needs access to UNEs); GCI Comments at 19-20; Z-Tel Comments at 22-24; BellSouth Reply at 13 (arguing that the Commission should require individual competitive LECs to demonstrate both that they are "reasonably efficient" and that alternative elements are not available to them); NewSouth Reply at 11; Z-Tel Reply at 22; BellSouth NERA Reply Decl. at para. 135; Z-Tel Ford Reply Decl. at paras. 24-25; ACS Jan. 6, 2003 *Ex Parte* Letter at 9-11 (urging Commission to find Alaskan competitor not impaired); ACS Jan. 16, 2003 *Ex Parte* Letter (urging Commission to find Alaskan competitor not impaired); Letter from Karen Brinkmann, Counsel for ITTA, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1 (filed Jan. 27, 2003) (ITTA Jan. 27, 2003 *Ex Parte* Letter). *But see, e.g.*, Qwest Reply at 24-25. The Commission also

recognize that section 251(d)(2) refers to "*the* telecommunications carrier seeking ~~aeeess~~," but such a subjective, individualized approach could give some carriers access to elements but not others, and could reward those carriers that are less efficient or whose business plans simply call for greater reliance on UNEs. Providing UNEs to carriers with more limited business strategies would also disregard the availability of scale and scope economies gained by providing multiple services to large groups of customers.[396] Thus, an entrant is not impaired if it could serve the market in an economic fashion using its own facilities, considering the range of customers that could reasonably be served and the services that could reasonably be provided with those facilities. Furthermore, a carrier- or business plan-specific approach would be administratively unworkable for regulators, incumbent LECs, and new entrants alike because it would require case-by-case determinations of impairment and continuous monitoring of the competitive situation. Finally,

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disagreed with this approach in the *UNE Remand Order*. *See UNE Remand Order*, 15 FCC Rcd at 3725-27, paras. 53-54.

[396] For example, a carrier could claim that it would be unable to pursue a strategy of providing local exchange service to all people with the first name "Sam." Because of the relatively small number of people with that name, the cost of providing such service would likely be very high, and thus entry would be impossible without UNEs. However, an entrant could achieve a much lower average cost of service while serving these people, by pursuing a business strategy of providing service to all potential customers in the market. It might be able to further lower its costs by offering other services, such as vertical features and data services. Our determination is thus based on an entrant providing the full range of services and to all customers supported by the marketplace. Our analysis must, however, take into account diseconomies of scale and scope that might exist, such as limitations on what services customers are willing to purchase as a bundle from a single provider. *But see* BTI Comments at 6 (noting that competitive LECs cannot compete with incumbent LEC scale economies); Eschelon Comments at 11-14 (noting that a competitive LEC that serves geographically dispersed customers may not be able to construct a duplicative network).

we do not read *Verizon* to state the contrary.[397] While *Verizon* noted that smaller entrants may be in greater need of UNEs than larger carriers,[398] the Supreme Court made those factual observations in the context of defending unbundling in general, not in the context of requiring any particular kind of impairment analysis. Thus, we agree with commenters that argue we cannot order unbundling merely because certain competitors or entrants with certain business plans are impaired.[399] Rather, we will achieve needed granularity through consideration of other factors discussed below in Part V.B.2.

116. For similar reasons, we decline to make impairment determinations on an incumbent LEC-by-incumbent LEC basis.[400] The "impair" inquiry of section 251(d)(2) focuses on requesting carriers, not incumbent LECs.[401] We recognize, however, that many aspects of our impairment analysis may coincidentally turn on the incumbent LEC, such as potential revenue opportunities, geographic areas (as explained below in Part V.B.2.b regarding Geographic Granularity), and costs. Likewise, we do not resolve here disputes between particular incumbent LECs and requesting carriers over compliance

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397 *See* NewSouth Reply at 11; Z-Tel Ford Reply Decl. at para. 24.

398 *See Verizon*, 535 U.S. at 503 n.20, 510 n.27.

399 *See* Competitive Enterprise Institute Comments at 3 (cautioning Commission against setting different standards for different carriers); Verizon Comments at 42-43; BOC Shelanski Decl. at para. 39 (pointing out that antitrust law focuses on harms to competition, not harms to individual competitors). *But see, e.g.*, Eschelon Comments at 8 (noting that smaller, newer competitive LECs may face higher hurdles than larger, established competitive LECs).

400 *See, e.g.*, ACS Jan. 6, 2003 *Ex Parte* Letter at 9-11 (arguing that unbundling is no longer warranted for Alaskan incumbent subject to substantial retail competition).

401 47 U.S.C. § 251(d)(2)(B) (The unbundling inquiry asks whether denial of a UNE "would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.").

with the Act and our rules.[402] Such disputes are better handled in an enforcement context, not in a rulemaking.

117. *UNEs As Purely Transitional Measures for Competitive Development.* We recognize, as the Commission did in the *UNE Remand Order*, that in some instances (discussed in greater detail in the Parts on specific UNEs) UNEs can serve as transitions to facilities-based competition.[403] We do not, however, agree with commenters that urge that all UNEs must necessarily be limited to temporary availability.[404] The

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[402] *See, e.g.*, Letter from Frederick W. Hitz, III, Director, Rates and Tariffs, General Communication, Inc., to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 11, *in* Letter from John T. Nakahata, Counsel for GCI, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Nov. 21, 2002) (GCI Nov. 21, 2002 *Ex Parte* Letter); ACS Jan. 6, 2003 *Ex Parte* Letter at 6-9; Letter from Frederick W. Hitz, III, Director, Rates and Tariffs, General Communication, Inc., to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2-10, *in* Letter from John T. Nakahata, Counsel for GCI, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 23, 2003) (GCI Jan. 23, 2003 *Ex Parte* Letter). We therefore dismiss as moot the portion of the CompTel Nov. 26, 2001 Joint Conference Petition in which CompTel requests that the Commission not consider lifting unbundling obligations for a UNE unless the incumbent LEC making the request has "fully complied with its obligation to provide the UNE for a commercially reasonable period of time." CompTel Nov. 26, 2001 Joint Conference Petition at 14.

[403] *See UNE Remand Order*, 15 FCC Rcd at 3700-01, paras. 6-7; *see also, e.g.*, New York State Attorney General Reply at 14; Letter from James W. Cicconi, General Counsel and Executive Vice President—Law & Government Affairs, AT&T, to Michael K. Powell, Chairman, FCC, *et al.*, CC Docket Nos. 01-338, 96-98, 98-147 at 14-15 (filed Nov. 13, 2002) (AT&T Nov. 13, 2002 *Ex Parte* Letter).

[404] *See* Verizon Comments at 26-27, 70; Verizon Reply at 45, 60; *see also* Alcatel Comments at 21. *But see, e.g.*, California Commission Comments at 15; Eschelon Comments at 17; Maine CLEC Coalition Comments at 7; Colorado Commission Reply at 3-4; Sprint Reply at 14-15; WorldCom Oct. 23, 2002 *Ex Parte* Letter, Attach. at 16.

Act requires incumbent LECs to make an element available so long as requesting carriers would be impaired without it. While we could find impairment to be limited in time based on specific evidence in the record, we could not generally limit UNEs based on speculation that, at some time in the future, competitors might no longer be "impaired." Rather, we will let the facts and evidence guide our determination as to when unbundling obligations can be lifted.

2. Granularity of the Impairment Analysis

118. In this Part, we explain how and why our approach to unbundling will be granular. In the *Triennial Review NPRM*, the Commission asked many questions about whether and how to make the unbundling analysis more granular by considering such factors as specific services, specific geographic locations, the different types and capacities of facilities, and customer and business considerations.[405] Subsequently, the *USTA* decision directed us to approach the section 251(d)(2) impairment analysis by considering "market-specific variations in competitive impairment."[406] As explained in detail below, we will apply several types of granularity in our unbundling analysis, including considerations of customer class, geography, and service.[407] In addition, within our discussions of specific network

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405 *Triennial Review NPRM*, 16 FCC Rcd at 22797-98, paras. 34-35.

406 *USTA*, 290 F.3d at 422.

407 *See, e.g.*, GCI Comments at 20; BOC Shelanski Decl. at para. 40 (arguing that the Commission should define markets in terms of product and geography); BellSouth Reply at 10 (stating that *USTA* supports the views that "[d]ifferentiated (or 'partial') national unbundling rules are sustainable"; "[t]he Commission is capable of making market differentiations"; and "[a] nuanced concept of impairment requires a consideration of specific markets or market categories"); Ohio Commission Reply at 6; Qwest Reply at 26; SBC Reply at 67-68; BOC Shelanski Reply Decl. at para. 18 (arguing for careful market definition); GCI Nov. 21, 2002 *Ex Parte* Letter, Attach. at 2; ITTA Jan. 27, 2003 *Ex Parte* Letter, Attach. at 1.

elements, we will also inject granularity into our analysis by considering types and capacities of facilities.[408] While some have argued that granularity can only harm competition by making it more difficult for competitors to use UNEs,[409] we find that additional granularity takes into account "the state of competitive impairment in [a] particular market,"[410] and adds the needed "balance" to our unbundling rules that the courts have required.[411] Indeed, doing a granular analysis permits us to distinguish situations for which there is impairment from those for which there is none.[412]

119. We disagree that we should conduct a different impairment analysis for independent incumbent LECs than for BOCs, or that we should formulate different triggers for relief from unbundling obligations for these carriers.[413] Sections 251(c)(3) and 251(d)(2) apply equally to all

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[408] Several commenters urged us to do so. *See, e.g.*, SBC Comments at 32-33.

[409] *See* AT&T Comments at 61-64. *See generally* Illinois Commission Comments at 5.

[410] *USTA*, 290 F.3d at 422.

[411] *Iowa Utils. Bd.*, 525 U.S. at 430 (Breyer, J., concurring); *USTA*, 290 F.3d at 427 (quoting *Iowa Utils. Bd.*, 525 U.S. at 429-30 (Breyer, J., concurring)).

[412] *See, e.g.*, ACS Reply at 4. This granularity may well result in different findings for urban versus rural markets. *See* ACS Jan. 16, 2003 *Ex Parte* Letter (urging Commission to take local Alaskan market conditions into account); ITTA Jan. 27, 2003 *Ex Parte* Letter, Attach. at 2-3 (arguing that the Commission should take the characteristics of independent incumbent LECs into account through a more granular analysis), 5-6 (finding support in section 251(f) for the proposition that Congress intended a market-specific impairment analysis, particularly for rural carriers). We do not in this Order address appropriate rules for state proceedings regarding the rural exemption of section 251(f). *Id.* at 5-6.

[413] *See generally, e.g.*, ACS Jan. 6, 2003 *Ex Parte* Letter; ITTA Jan. 27, 2003 *Ex Parte* Letter, Attach. at 3; ITTA Jan. 29, 2003 *Ex Parte* Letter, Attach.

incumbent LECs, both independents and BOCs,[414] and Congress applied a different standard to BOCs than to independent incumbent LECs in other areas of the 1996 Act, such as section 271.[415] That being said it is possible that our more granular analysis will produce different results in some independent incumbent LEC territories to the extent they are more rural or less densely populated than other territories. However, many rural LECs still retain the exemption from section 251(c)(3) of the Act as required by section 251(f), and as such, will not be subject to those particular unbundling requirements until such time as the exemption is lifted.[416]

120. We disagree with commenters that section 251(c)(3)'s reference to "a telecommunications service" means that a granular analysis is unlawful because UNEs must be available for any telecommunications service.[417] As we discuss in more detail in Part V.B.2.c., this argument is no longer consistent with the D.C. Circuit's call for granularity or its affirmation of the Commission's previous service-by-service inquiry.

121. We also disagree with commenters that the only type of granular analysis that would enhance the unbundling rules must be so granular as to be administratively unworkable, and therefore that the Commission should not pursue any

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[414] 47 U.S.C. § 251(c) ("[E]ach incumbent local exchange carrier has the following duties . . . ."); *id.* § 251(d)(2) ("In determining what network elements should be made available for purposes of subsection (c)(3) . . . .").

[415] *Id.* § 271(a) ("Neither a Bell operating company, nor any affiliate of a Bell operating company, may provide interLATA services except as provided in this section.").

[416] *Id.* § 251(f)(1), (2). Section 251(f)(1) involves a conditional exemption from section 251(c) for rural telephone companies, while section 251(f)(2) involves a right of rural carriers with fewer than 2% of the nation's subscriber lines to petition state commissions for suspension and modification of section 251(c) obligations. *Id.* § 251(f)(2).

[417] *See, e.g.*, ASCENT Comments at 28-30.

granularity at all.[418] Furthermore, commenters argue, any granularity will involve line-drawing that will yield imperfect results—underinclusiveness and overinclusiveness—and will lead to litigation and opportunities for incumbent LECs to interpret rules aggressively in their own favor.[419] We conclude, as explained below, that we can incorporate granularity in an administratively workable fashion that results in meaningful distinctions in our unbundling rules. We cannot analyze each of the countless pieces of equipment in the incumbent LECs' networks individually. As we have stated, the courts have not required such an extreme level of granularity and we find that approach, in any event, administratively infeasible. We recognize, too, that Congress expressed its preference for "deregulation," but we do not agree that a general call for deregulation throughout implementation of the many provisions of the 1996 Act must trump our duty to make the unbundling analysis of section 251 adhere as closely as possible to the *many* goals of the Act by declining to engage in a careful, granular analysis.[420]

122. We also disagree with commenters that argue that the definition of "network element" contained in section 153(29) precludes any unbundling distinctions based on the granularity factors we have determined to examine.[421] The D.C. Circuit has instructed us to perform a more granular

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[418] *See* AT&T Comments at 98-99; CompTel Comments at 75-76; Sprint Reply at 23. *Cf.* ATTWS Comments at 7 (cautioning that too much granularity could make the Commission's rules too complicated and could increase market uncertainty); Dynegy Comments at 5; NewSouth Comments at 51; Qwest Comments at 16-17 (urging the Commission to adopt rules that are easy to administer and predictable); Allegiance Reply at 18, 26 (noting that a fully granular analysis is not possible).

[419] *See* AT&T Comments at 99-106; WorldCom Reply at 21; AT&T Willig Reply Decl. at para. 69. *See generally* NewSouth Comments at 55; SWCTA Comments at 16.

[420] *Cf.* Qwest Comments at 16.

[421] *See* CompTel Comments at 23.

analysis.[422] Moreover, it is up to the Commission to determine *which* network elements, as defined by the Commission, must be unbundled. Section 251(d)(2) does not direct us to unbundle all elements in all circumstances. Likewise, section 251(c)(3) does not prevent us from making more granular assessments of unbundling. Section 251(c)(3) indicates *where* network elements must be unbundled (after a section 251(d)(2) analysis results in an unbundling determination) and says nothing about the impairment finding that creates the unbundling obligations in the first instance.[423]

a. Customer Class Distinctions

123. In this Part, we distinguish broad classes of customers as the first step in introducing granularity into our analysis. We asked in the *Triennial Review NPRM* whether our analysis should consider the type of customer that a requesting carrier seeks to serve.[424] Subsequent to the *NPRM*, customer classes were specifically discussed as a relevant example of granularity in *USTA v. FCC*.[425] We find here that the economic characteristics of the mass market, small and medium enterprise, and large enterprise customer classes can be sufficiently different that they constitute major market segments. Much of our analysis in discussing the individual network elements will be organized around these classes, which may vary slightly from element to element because of the different economic considerations that surround the different elements.[426] These customer classes generally differ

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422 *USTA*, 290 F.3d at 415.

423 *See Iowa Utils. Bd.*, 525 U.S. at 391.

424 *Triennial Review NPRM*, 16 FCC Rcd at 22801-02, paras. 42-44.

425 *USTA*, 290 F.3d at 422-26.

426 Where it is appropriate, in our discussion of the individual network elements we will provide an even more granular analysis, examining whether impairment exists in the provision of different

in the kinds of services they purchase,[427] the service quality they expect, the prices they are willing to pay, the levels of revenues they generate, and the costs of delivering them services of the desired quality. While our analysis will be performed on a granular level, we will only discuss those distinctions that could yield a difference in our finding of impairment. If different classes of customers have sufficiently similar economic characteristics such that we expect them to yield identical findings of impairment with regard to the network element in question, then we will analyze those classes together.

124. Based on the record before us, it is reasonable to distinguish these three classes of customers—mass market, small and medium enterprise, and large enterprise—for several reasons. These classes can differ significantly based on the services purchased, the costs of providing service, and the revenues generated. Because of these differences, for certain network elements the determination whether impairment exists may differ depending upon the customer class a competing carrier seeks to serve.

125. We reject the argument made by some commenters that distinguishing customers by customer class is either not required by the Act, nor administratively practicable.[428] As discussed earlier, a more granular analysis is required to determine whether competing carriers are impaired in providing the services they seek to provide.[429] Because carriers' impairment could vary by customer class, we are obligated to determine which customers could not be served

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services, for different types of customers, located in different geographic areas.

[427] *See supra* Parts VI.A.4.b.(ii)(c) and VI.C.4.c.

[428] AT&T Comments at 97-100; CompTel Comments at 75; Covad Comments at 42; Georgia Commission Comments at 3-4; Illinois Commission Comments at 5; Sprint Comments at 14-17.

[429] *See supra* Part V.B.2.

by carriers without the UNEs in question, and, where practical, require unbundling only for those customers. We also find that distinguishing customers by class is administratively practical in our analysis for many of the network facilities. While we acknowledge that our analysis is limited by the administrative feasibility of performing a particular level of granular analysis, we find that distinguishing customers by class is both convenient and feasible, and increases the granularity of our analysis. It also allows us to examine more carefully whether competing carriers are able to serve small businesses, and determine the unbundling requirements needed to overcome competing carriers' impairment (if any) in serving these customers. We can thus ensure that our rules will bring the benefits of competition to small businesses.

126. We note that in previous orders, such as the *UNE Remand Order*, we found it appropriate to consider the customer classes a requesting carrier seeks to serve when considering whether to unbundle a network element.[430] Distinguishing customers by type is also consistent with our approach in merger orders, such as the *Bell Atlantic/NYNEX Merger Order*, the *SBC/Ameritech Merger Order*, and the *WorldCom/MCI Merger Order*.[431]

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[430] *UNE Remand Order*, 15 FCC Rcd at 3737, para. 81 ("[T]he type of customers that a competitive LEC seeks to serve is relevant to our analysis of whether the cost of self-provisioning or acquiring an element from a third-party supplier impairs the ability of a requesting carrier to provide the services it seeks to offer."). This approach was subsequently applied in the *Line Sharing Order*. *Line Sharing Order*, 14 FCC Rcd at 20929, paras. 31-32.

[431] *Application of NYNEX Corp., Transferor, and Bell Atlantic Corp., Transferee, For Consent to Transfer Control of NYNEX Corp. and its Subsidiaries*, File No. NSD-L-96-10, Memorandum Opinion and Order, 12 FCC Rcd 19985, 20016, para. 53 (1997) (*Bell Atlantic/NYNEX Merger Order*); *Applications of Ameritech Corp., Transferor, and SBC Communications, Inc., Transferee, For Consent to Transfer Control of Corporations Holding Commission Licenses and Lines Pursuant to*

127. Mass market customers consist of residential customers and very small business customers.[432] Mass market

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Sections 214 and 310(d) of the Communications Act and Parts 5, 22, 24, 25, 63, 90, 95, and 101 of the Commission's Rules, CC Docket No. 98-141, Memorandum Opinion and Order, 14 FCC Rcd 14712, 14746, para. 68 (1999) (*SBC/Ameritech Merger Order*); *Application of WorldCom, Inc. and MCI Communications Corp. for Transfer of Control of MCI Communications Corp. to WorldCom, Inc.*, CC Docket No. 97-211, Memorandum Opinion and Order, 13 FCC Rcd 18025, 18040-41, paras. 25-26 (1998) (*WorldCom/MCI Merger Order*). The approach in these merger orders follows that developed in the *LEC Classification Order*, which followed the 1992 Merger Guidelines. *See Regulatory Treatment of LEC Provision of Interexchange Services Originating in the LEC's Local Exchange Area and Policy and Rules Concerning the Interstate, Interexchange Marketplace*, CC Docket Nos. 96-149, 96-61, Second Report in CC Docket No. 96-149 and Third Report and Order in CC Docket No. 96-61, 12 FCC Rcd 15756, 15773-74, paras. 25-26 (*LEC Classification Order*); *WorldCom/MCI Merger Order*, 13 FCC Rcd at 18040, para. 25. The *Bell Atlantic/NYNEX Merger Order* found three separate customer groups, consisting of residential and small business, medium-sized businesses, and large business and government. *Bell Atlantic/NYNEX Merger Order*, 12 FCC Rcd at 20016, para. 53. In the *WorldCom/MCI Merger Order, SBC/Ameritech Merger Order*, and *Bell Atlantic/GTE Merger Order*, the Commission distinguished mass market consumers from larger business customers in its analysis of the provisioning of local exchange and exchange access services. *WorldCom/MCI Merger Order*, 13 FCC Rcd at 18119, para. 164; *SBC/Ameritech Merger Order*, 14 FCC Rcd at 14746, para. 68; *Application of GTE Corp., Transferor, and Bell Atlantic Corp., Transferee, For Consent to Transfer Control*, CC Docket No. 98-184, Memorandum Opinion and Order, 15 FCC Rcd 14032, 14088-89, para. 102 (*Bell Atlantic/GTE Merger Order*).

[432] Very small businesses typically purchase the same kinds of services as do residential customers, and are marketed to, and provided service and customer care, in a similar manner. Therefore, we will usually include very small businesses in the mass market for our analysis. We note, however, that there are some differences between very small businesses and residential customers. For example, very small businesses usually pay higher retail rates, and may be more likely to purchase additional services such as multiple lines, vertical features, data services,

customers typically purchase ordinary switched voice service (Plain Old Telephone Service or POTS) and a few vertical features. Some customers also purchase additional lines and/or high speed data services. Although the cost of serving each customer is low relative to the other customer classes, the low levels of revenue that customers tend to generate create tight profit margins in serving them. The tight profit margins, and the price sensitivity of these customers, force service providers to keep per customer costs at a minimum. Profits in serving these customers are very sensitive to administrative, marketing, advertising, and customer care costs. These customers usually resist signing term contracts.

128. Small and medium enterprises are willing to pay higher prices for telecommunications services than the mass market. Indeed, they are often required to do so under business tariffs. Because their ability to do business may depend on their telecommunications networks, they are typically very sensitive to reliability and quality of service issues. These customers buy larger packages of services than do mass market customers, and are willing to sign term contracts. These packages may include POTS, data, call routing, and customized billing, among other services. Although serving these customers is more costly than mass market customers, the facts that enterprise customers generate higher revenues, and are more sensitive to the quality of service, generally allow for higher profit margins. The higher profit margins and greater emphasis on quality of service can provide a greater incentive to competing carriers to provision their own facilities, and the higher revenues make it easier to cover the fixed costs of installing such facilities.

129. Large enterprises demand extensive, sophisticated packages of services. Reliability of service is essential to these customers, and they often expect guarantees of service

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and yellow page listings. Therefore, we may include them with other enterprise customers, where it is appropriate in our analysis.

quality. The services they might purchase include an internal voice and data network, local, long distance, and international POTS service to one or multiple locations, provisioning and maintenance of a data network such as ATM, frame relay or X.25, and customized billing. The large revenues these customers generate, and their need for reliable service and specialized equipment to serve them, provide a large incentive to suppliers to build their own facilities where possible, and carry these customers' traffic over their own networks.

b. Geographic Granularity

130. In the *Triennial Review NPRM*, we sought comment on whether and how to reflect geographic differences in the application of our unbundling standard.[433] The *USTA* decision also found a need for a more granular analysis in general that takes "market-specific variations" into account.[434] As many commenters urge us to do, throughout our application of the analysis to specific elements we will consider whether impairment varies geographically throughout the country.[435] Indeed, several incumbent LECs urge this Commission to adopt an unbundling analysis that is far more granular than

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[433] *See Triennial Review NPRM*, 16 FCC Rcd at 22799-800, para. 39.

[434] *See USTA*, 290 F.3d at 422.

[435] *See, e.g.*, Alcatel Comments at 19-20; GCI Comments at 21; SBC Comments at 30-32; BOC Shelanski Decl. at para. 41; Verizon Reply at 35; Verizon Dec. 17, 2002 *Ex Parte* Letter, Attach. at 2-3.

We do not, however, evaluate in this proceeding whether states have set TELRIC prices at appropriate levels. *See, e.g.*, ACS Jan. 6, 2003 *Ex Parte* Letter (arguing that Alaska Commission has set UNE rates below cost). This proceeding is not the proper forum for such arguments, for which the Act has set up a separate review procedure in section 252(e)(6).

that of the *UNE Remand Order*.[436] Such an approach permits us to take the circumstances of rural carriers and the areas they serve into account.[437] In those instances where the record permits us to create unbundling rules that apply nationally—because the result would be the same as if we conducted a separate analysis of each geographic market—we agree with commenters that we should do so.[438] In other instances, we will create rules that will vary in their implementation in different areas of the country. Accordingly, in these circumstances, we may delegate authority to state commissions to ensure that the unbundling rules are

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[436] *See* Qwest Reply at 26-27 ("[A] market specific analysis may be necessary to eliminate unbundling obligations in certain markets where it would be feasible for CLECs to obtain network elements from a non-ILEC source . . . . For example, . . . the increased deployment of CLEC transport facilities in certain markets justifies geographic specificity in the unbundling analysis for the dedicated transport network element."); SBC Reply at 67 ("[T]he Commission may not make UNEs available where competitors are already using or should be able to use alternatives to UNEs . . . . With respect to . . . elements [other than switching, transport, and high-capacity loops], it may be true in some areas but not yet in others. For those elements, the Commission *must* adopt a more granular analysis of when to order unbundling.") (emphasis in original); Verizon Reply at 35 ("[A] geographic-specific analysis is necessary, not to determine where CLECs are not impaired, but to identify those few remaining locations where they are impaired."); BellSouth NERA Reply Decl. at para. 136 ("To summarize, the geographic granularity sought by the Commission can be helpful for defining the market within which impairment analysis should be conducted.").

[437] *See, e.g.*, Eschelon Comments at 9 (noting that it services small business customers, which are often not located in downtown areas); Rural Independent Competitive Alliance Comments at 2-3; PACE Coalition Comments on Verizon Forbearance Petition at 6 (filed Sept. 3, 2002); NTCA Reply at 2-3 (arguing that rural areas cannot economically be served by several carriers).

[438] *See* SBC Comments at 32; Allegiance Reply at 4 (noting that the Commission can adopt a national market for some UNEs and disaggregated markets for others); Qwest Reply at 26; WorldCom Reply at 22-23.

implemented on the most accurate level possible while still preserving administrative practicality.[439]

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[439] *Cf., e.g.*, ASCENT Comments at 32-33 (urging the Commission to permit the states to handle any location-specific analysis); BellSouth Comments at 23 (arguing that the Commission should use MSAs in all instances); California Commission Comments at 12-13 (noting geographic differences in competition); Covad Comments at 84 (noting that the Commission cannot likely do a geographically-specific analysis); Florida Commission Comments at 2-3; GCI Comments at 22-23 (urging caution in aggregating geographic areas); New York Department Comments at 5; NuVox Comments at 52 (urging the Commission to involve the states in any geographically-specific analysis); Qwest Comments at 16-17 (arguing that geographic markets smaller than MSAs are probably unworkable); Texas Commission Comments (urging strong role for states); UNE Platform Coalition Comments at 27-32 (urging Commission to permit states to have substantial role); Allegiance Reply at 4 (urging Commission to delegate loop and transport analysis to states), 25 (noting difficulties of generalizing markets); BellSouth Reply at 12 (urging use of MSA); Talk America Reply at 14-17 (arguing that only the states can make sufficiently granular rules); WorldCom Reply at 23-24; BellSouth NERA Reply Decl. at para. 125 (urging use of MSA); Covad Murray Reply Decl. at paras. 14-16 (noting that the Commission needs state help to do a geographically granular analysis); Letter from Russell M. Blau, Counsel for Lightship Telecom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1 (filed June 28, 2002) (Lightship June 28, 2002 *Ex Parte* Letter) (arguing that MSAs are too large for meaningful granularity); GCI Nov. 21, 2002 *Ex Parte* Letter, Attach. at 11-12.

Thus, even in those circumstances where the record contains substantial evidence regarding market conditions in some localities, the Commission may determine that state commissions are better poised to assess local impairment through hearings or other fact-finding procedures. *But see* ACS Jan. 16, 2003 *Ex Parte* Letter (urging Commission to make a finding of no impairment for Alaskan markets). We also do not address ACS's request for forbearance contained within a written *ex parte* presentation, as this is a rulemaking proceeding. Parties remain free to file petitions for forbearance that comply with our rules. 47 C.F.R. § 1.53.

Covad has pointed out that if we adopted the HMG as our "impair" standard, it would require us to define a geographic market for our analysis. *See* Covad Reply at 10; *see also* BellSouth NERA Reply Decl. at paras. 123-24 (noting that HMG could form basis of granular

131. We disagree with commenters that urge us not to conduct any geographically-specific analysis or delegate any geographic analysis to the states because, for example, geographically-granular rules will raise the cost of advertising, eliminate the possibility of ubiquitous competitive service, or prove administratively unworkable.[440] In some cases, it is not possible for us to adopt nationally-applicable rules that adhere to the *USTA* court's call for additional granularity.[441] Indeed, where we do defer analysis to the states, we expect they will achieve a much finer delineation of impairment from non-impairment than what we could do nationally.[442]

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analysis). We take this lesson of geographic granularity from the HMG without adopting the HMG wholesale, as explained above. *See supra* Part V.B.1.d.(iii).

[440] *See, e.g.*, Sprint Comments at 5, 14-15; WorldCom Comments at 63; Mpower Reply at 17-18; AT&T Willig Reply Decl. at paras. 67-68 (arguing that a national unbundling list is "deregulatory" in the sense that it is simpler and leads to less regulatory involvement). *But see* BellSouth NERA Reply Decl. at para. 127 (noting that ubiquity and a granular analysis are not compatible).

[441] *But see, e.g.*, Arch Wireless Reply at 6, 11, 18 (arguing that paging and CMRS carriers need national unbundling rules).

[442] Likewise, we do not agree that we must unbundle everywhere so that requesting carriers can enter "ubiquitously," and that requiring unbundling in locations where there is no impairment will do no harm. *See, e.g.*, Sprint Comments at 15-16; SWCTA Comments at 16-17. *But see* BellSouth Comments at 26; Qwest Comments at 13; Verizon Reply at 37-39, 47; BOC Shelanski Decl. at para. 4. Because unbundling has costs as well as benefits, we determine to unbundle elements only where they meet our "impair" standard. *See USTA*, 290 F.3d at 422; *see also, e.g.*, SBC Reply at 22-23, 33. *But see, e.g.*, WorldCom Comments at 49 (noting that competitive LECs cannot build a totally ubiquitous network); AT&T Reply at 55 (noting that inability to provide service ubiquitously contributes to impairment by limiting the number of customers over which overhead costs can be spread); Talk America Reply at 6, 36 (arguing that competitive LECs will prefer to use their own facilities when possible).

c. Service Considerations

132. In this Part, we describe how we will use a service-specific framework to analyze the circumstances under which competitors qualify for access to UNEs. We adopt an approach that is consistent with the goals of the 1996 Act because it obligates incumbent LECs to provide access to UNEs only when requesting carriers seek to use those elements to compete against those services that traditionally have been the exclusive domain of incumbent LECs. As we explain below, Congress created the section 251 unbundling regime to foster competition in the incumbent LECs' core markets. Moreover, we set forth an approach that is consistent with the guidance we have received from the D.C. Circuit in the *USTA* and *CompTel* decisions.[443]

133. Under the approach we adopt today, a requesting carrier may access UNEs for the purpose of providing "qualifying services," as we define them below. Once a requesting carrier satisfies this condition, we reaffirm the Commission's existing rules that permit the carrier to use a UNE to provide additional services including non-qualifying telecommunications services and information services.[444] We reiterate that requesting carriers must be telecommunications carriers that seek to use the UNE to provide common carrier services, rather than private carrier services.

(i) Legal Background and Authority

134. Section 251(d)(2) sets forth the standard by which the Commission is to determine what network elements should be unbundled. Congress directed the Commission to consider

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[443] *See USTA*, 290 F.3d at 422-30; *CompTel*, 309 F.3d at 12-16.

[444] In Part VII.B. below, we describe that, with respect to high-capacity facilities over which several types of services may be provided (*i.e.*, local, long distance, or Internet access), we determine that certain eligibility requirements must be satisfied to ensure that these facilities are being used for a qualifying service.

whether "the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the *services* that it seeks to offer."[445] In earlier orders, the Commission generally approached the unbundling analysis with regard to all telecommunications services, rather than the specific types of services a requesting carrier sought to provide over an element.[446] More recently, the Commission began to take the service provided by a requesting carrier into account, but did not do so in a comprehensive and consistent fashion.[447]

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[445] 47 U.S.C. § 251(d)(2)(B) (emphasis added). The statute also requires the Commission to consider whether "access to such network elements as are proprietary in nature is necessary." 47 U.S.C. § 251(d)(2)(A). That prong of section 251(d)(2) does not include a reference to the "services that [the requesting carrier] seeks to offer." However, the same rationale applies to proprietary network elements as to non-proprietary network elements with respect to Congress's intent regarding when network elements would be available for requesting carriers. In fact, Congress intended a higher standard—when access to the element is necessary, not just when a carrier is impaired without access to the element—to govern the availability of proprietary network elements. Therefore, there is no reason to differentiate between proprietary and non-proprietary network elements with respect to the services for which they can be used. In any event, we do not analyze any proprietary elements in this Order, so consideration of which services will be provided using those UNEs is not necessary.

[446] *UNE Remand*, 15 FCC Rcd at 3911-12, para. 484; *Local Competition Order*, 11 FCC Rcd at 15671-72, para. 356.

[447] *See, e.g.*, *Supplemental Order Clarification* 15 FCC Rcd at 9598, para. 21 (usage restrictions applied to only EELs, not all UNEs). In the *Triennial Review NPRM*, the Commission sought comment on whether the unbundling analysis should be applied to specific services. *Triennial Review NPRM*, 16 FCC Rcd at 22798-99, para. 36. In a Public Notice issued following the *Supplemental Order Clarification*, the Commission also requested comment on whether it should undertake to conduct its impairment analysis on a service-by-service or market-by-market basis, and if so, how. *Comments Sought on the Use of Unbundled Network Elements to Provide Exchange Access Service*, CC Docket No. 96-98, Public Notice, DA 01-169 (rel. Jan. 24, 2001) (*Exchange Access Public*

Instead of adopting an overall framework applicable to all UNEs, the Commission focused only on how the UNE was being used in the context of specific elements. In this Order, although we decline to adopt a service-by-service impairment framework, we conclude that only requesting carriers providing certain qualifying services are entitled to UNEs.

(ii) Qualifying Services

135. We find that, in order to gain access to UNEs, carriers must provide qualifying services using the UNE to which they seek access. By "qualifying," we mean those telecommunications services offered by requesting carriers in competition with those telecommunications services that have been traditionally the exclusive or primary domain of incumbent LECs. They include, for example, local exchange service, such as POTS, and access services, such as xDSL and high-capacity circuits.[448]

136. In determining which types of service qualify for UNEs, we first look to the text of the 1996 Act. Because the text of the Act does not provide unambiguous direction, we consider the structure and history of the relevant portions of the Act, including its stated purposes, and interpret the statute to reach a reasonable conclusion regarding Congress's intent. Ultimately, we rely upon the purposes of the Act to support the interpretation that a permissible use of a network element must include a qualifying component.

137. First, we note that section 251(d)(2)'s reference to the "services that [the carrier] seeks to offer" is ambiguous as to the question of which services we should analyze in the

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Notice). The Commission also asked whether the service-specific approach should be applied to all aspects of the section 251(d)(2) analysis or just the "impairment" prong. *Triennial Review NPRM*, 16 FCC Rcd at 22798-99, para. 36.

[448] These services must be offered on a common carrier basis, as explained below.

context of our impairment analysis.[449] Despite prior interpretations to the contrary, in the *Supplemental Order Clarification* the Commission concluded that this language was indeed ambiguous, and determined to examine section 251(d)(2)'s reference to "services" as part of the impairment analysis.[450] In the context of considering whether requesting carriers could lease UNEs *solely* to provide exchange access or long distance services,[451] the Commission noted that section 251(d)(2)'s "services" language likely would limit the conversion of special access to combinations of loop and transport UNEs:

> [Section 251(d)(2)] asks whether denial of access to network elements "would impair the ability of the telecommunications carrier seeking access to provide *the services that it seeks to offer*." Although ambiguous, that language is reasonably construed to mean that we may consider the markets in which a competitor "seeks to offer" services and, at an appropriate level of generality, ground the unbundling obligation on the competitor's entry into those markets in which denial of the requested elements would in fact impair the competitor's ability to offer services.[452]

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[449] *Supplemental Order Clarification*, 15 FCC Rcd at 9595, para. 15; *USTA*, 290 F.3d at 422.

[450] *Supplemental Order Clarification*, 15 FCC Rcd at 9596, para. 15.

[451] *CompTel*, 309 F.3d at 11, 14.

[452] *Supplemental Order Clarification*, 15 FCC Rcd at 9595, para. 15 (footnotes omitted) (emphasis in original). Although the Commission in the *Supplemental Order Clarification* generally referred to use of a UNE in the provision of exchange access services, special access services, or long distance services, it is clear that the Commission was concerned about use of a UNE without appropriate consideration under the impair standard for how the UNE was to be used. *Supplemental Order Clarification*, 15 FCC Rcd at 9595-96, 9602, paras. 15-16, 28. Later in this Part, we specifically distinguish between the provision of exchange access services as part of a retail long distance service and the wholesale

138. We agree with the conclusion that the term "services" in section 251(d)(2) is ambiguous. Although Congress may have intended "services" in section 251(d)(2) to mean "telecommunications services" as used in section 251(c)(3), even this interpretation does not necessarily resolve the ambiguity concerning the scope of the section 251(d)(2) inquiry. While "telecommunications services" is more specific than "services," and thus limits the inquiry somewhat, we are still left to question which "telecommunications services" should be subject to the unbundling analysis.[453] Some parties have argued that section 251(d)(2) requires the Commission to analyze every telecommunications service using the impairment standard, and, that such a review would result in the unavailability of UNEs for most services except possibly local voice services.[454] Yet other parties argue that the Commission should not consider the particular services that a carrier seeks to offer at all, provided it seeks to offer a telecommunications service.[455] On this point, the D.C. Circuit observed that "[b]y

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provision of exchange access services in competition with the incumbent LEC's special access services. As a result, issues raised in the *Exchange Access Public Notice* are either no longer relevant or resolved in this Order.

[453] 47 U.S.C. § 251(c)(3) (emphasis added).

[454] Under these commenters' proposed analysis, requesting carriers would not be impaired without UNEs for those services for which sufficient retail competition exists. BellSouth Comments at 30-31, 34; SBC Comments at 21 ("[P]rior to ordering unbundling, the Commission must carefully scrutinize the service market in which the carrier that seeks to purchase the UNE intends to provide service. And, if 'the very concept of impairment' is to be 'intelligible,' it cannot permit unbundling where the service at issue is competitive."); Verizon Comments at 39-40.

[455] *See, e.g.*, ASCENT Comments at 28-29 ("Section 251(c)(3), accordingly, requires application of the unbundling analysis on a functionality-by-functionality basis, not on a service-by-service, or customer-by-customer, or carrier-by-carrier basis."); ATTWS Comments at 17 (arguing that a service-specific analysis would violate the plain

referring to the 'services that [the requesting carrier] seeks to offer,' [Congress] seems to invite an inquiry that is specific to *particular* carriers and services."[456] Thus, we conclude that the language of section 251(d)(2) is ambiguous concerning the scope of the impairment inquiry.

139. An examination of the purposes behind the Act provides us with guidance as to the scope of section 251(d)(2). In passing the 1996 Act, Congress substantially changed many aspects of federal regulation of telecommunications services by establishing a "pro-competitive, de-regulatory national policy framework" designed to benefit all Americans "by opening all telecommunications markets to competition."[457] As its preamble notes, the Act was designed "to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid development of new telecommunications technologies."[458] In particular, section 251's role in this regulatory scheme involves opening local markets to competition.[459] Indeed,

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language of the Act); California Commission Comments at 14; CompTel Comments at 52-54 (arguing that when a competitor buys a UNE, it pays for the entire functionality; a usage limitation would diminish the UNE's value); Illinois Commission Comments at 5; Maine CLEC Coalition at 6-7; Missouri Commission Comments at 8; NewSouth Comments at 52; Norlight Comments at 10; NuVox Comments at 45. We deny, in part, the petition for reconsideration filed by CompTel requesting that the Commission reconsider its decision to allow use restrictions for the reasons we explain in this section. Competitive Telecommunications Association Petition for Reconsideration, CC Docket No. 96-98 (filed Feb. 17, 2000) (CompTel Feb. 17, 2000 Petition for Reconsideration).

[456] *CompTel*, 309 F.3d at 12-13 (emphasis added).

[457] Joint Conference Report at 1.

[458] Preamble to the 1996 Act.

[459] *Id.*; *see also Local Competition Order*, 11 FCC Rcd at 15506, para. 4 ("Competition in local exchange and exchange access markets is

Congress recognized that "it is unlikely that competitors will have a fully redundant network in place when they initially offer *local service* . . . [and] some facilities capabilities (*e.g.*, central office switching) will likely need to be obtained from the incumbent local exchange carrier as network elements pursuant to new section 251."[460] As the Commission noted in the *Local Competition Order*, under the 1996 Act, "the opening of one of the last monopoly bottleneck strongholds in telecommunications—the local exchange and exchange access markets—to competition is intended to pave the way for enhanced competition in all telecommunications markets, by allowing all providers to enter all markets."[461] We find that a reasonable interpretation of the statute is that our impairment inquiry should center on those telecommunications services that competitors provide in direct competition with the incumbent LECs' core services, which we call "qualifying services."[462]

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desirable, not only because of the social and economic benefits competition will bring to consumers of *local* services, but also because competition eventually will eliminate the ability of an incumbent local exchange carrier to use its control of bottleneck local facilities to impede free market competition."). *See, e.g.*, Letter from Herschel L. Abbott Jr., Vice President—Government Affairs, BellSouth, to Michael K. Powell, Chairman, FCC, CC Docket No. 01-338 at 2, *in* Letter from Jonathan Banks, General Attorney, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 2 (filed Dec. 19, 2002) (BellSouth Dec. 19, 2002 *Ex Parte* Letter) (stating that Congress intended the Act "to provide competitive alternatives for basic wireline local exchange service."); HTBC Comments at 41 ("Section 251 was intended to promote competition in a voice telephony market when [incumbent LECs] have market power and where no competitive alternatives to [incumbent LECs'] networks existed . . .").

460 Joint Conference Report at 148 (emphasis added).

461 *Local Competition Order*, 11 FCC Rcd at 15506, para. 4.

462 *See* Letter from John J. Heitmann, Counsel for NuVox, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 (filed Jan. 15, 2003) (NuVox Jan. 15, 2003 *Ex Parte* Letter) (referencing the type of services it provides indicates NuVox "intends to and does compete

140. As stated above, by "qualifying services," we mean those telecommunications services offered by requesting carriers in competition with those telecommunications services that have been traditionally within the exclusive or primary domain of incumbent LECs.[463] These services, whether they are sold to residential or business customers, include, for example, local exchange services, such as POTS and local data service[464], and access services, such as xDSL[465]

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with the Bells and other ILECs head on in the provision of LEC services.").

[463] Our determination in this Part moots the issues the Commission raised in the *Shared Transport Order*. *See Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, Third Order on Reconsideration and Further Notice of Proposed Rulemaking, 12 FCC Rcd 12460, 12494-96, paras. 60-61 (1997) (*Shared Transport Order*) *aff'd*, *Southwestern Bell Tel. Co. v. FCC*, 153 F.3d 597 (8th Cir. 1998) (affirming the Commission's decision that shared transport is a network element regardless of the fact that shared transport can be used only when combined with switching), *vacated*, *Ameritech Corp. v. FCC*, 526 U.S. 1142 (1999), *aff'd in part on reh'g*, *Southwestern Bell Telephone Co.*, 199 F.3d 996 (8th Cir. 1999) (reissuing its affirmation of the Commission's determination that shared transport is a network element but vacating and remanding for further consideration the issue of whether shared transport must be made available on an unbundled basis).

[464] Letter from John J. Heitmann, Counsel for NuVox, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 2 (filed Jan. 23, 2003) (NuVox Jan. 23, 2003 *Ex Parte* Letter) (noting that a point-to-point local service comprises "data transmission between two points within a designated local calling area.").

[465] Although the D.C. Circuit vacated the Commission's conclusion that xDSL service is a "telephone exchange service" or "exchange access service," as defined in the Act, these services are currently regulated as "access services" as defined by the Commission's rules. *WorldCom v. FCC*, 246 F.3d 690 (D.C. Cir. 2001); *see also GTE Telephone Operating Cos., GTOC Tariff No. 1, GTE Transmittal No. 1148*, CC Docket No. 98-79, Memorandum Opinion and Order, 13 FCC Rcd 22466 (1998). For example, some carriers file access tariffs containing certain types of xDSL services, such as ADSL and SDSL. *See, e.g.*, National Exchange Carrier Association Tariff FCC No. 5, § 8; Sprint Local Telephone Co. Tariff

and high-capacity circuits.[466] Parties have asked us to clarify whether CMRS would qualify for the use of a UNE.[467] We find that because CMRS are used to compete against telecommunications services that have been traditionally within the exclusive or primary domain of incumbent LECs

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FCC No. 3, § 8.5; Roseville Tariff FCC No. 1, § 9.1. We note that commenters, including incumbent LECs, do not dispute that xDSL service is appropriately considered in our section 251 impairment analysis. BellSouth Comments 36-44; HTBC Comments at 40-42; SBC Comments at 22-23 (arguing that, under the impairment analysis, carriers should not receive access to UNEs for xDSL-based broadband services). *But see* Qwest Comments at 42 (noting that some "new network facilities" that can be used to provide xDSL "fall outside the scope of the market-opening objectives of section 251."); Verizon Comments at 71; Letter from William P. Barr, Executive Vice President and General Counsel, Verizon, to Michael K. Powell, Chairman, FCC, CC Docket No. 01-338 at 5, *in* Letter from Ann D. Berkowitz, Project Manager—Federal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Nov. 22, 2002) (Verizon Nov. 22, 2002 *Ex Parte* Letter).

[466] These services must be offered on a common carrier basis, as explained below. Our list is intended to identify general categories of services that would qualify as eligible services. It is not intended to be an exhaustive list or to identify services in a more particular manner. Rather, we believe this list should provide adequate guidance for parties to determine whether a service qualifies or not. *See* NuVox Comments at 55-56. In contrast, "non-qualifying" are those services not traditionally provided exclusively by incumbent LECs. Among others, they would include long distance voice services and data services provided on an interexchange basis.

[467] ATTWS Comments at 23-24; CTIA Comments at 3-7; Nextel Comments at 2; *see also* ATTWS and VoiceStream Petition for Declaratory Ruling, CC Docket No. 96-98 at 5-6 (filed Nov. 19, 2001) (ATTWS/VoiceStream Nov. 19, 2001 Petition); *Triennial Review NPRM*, 16 FCC Rcd at 22809-10, para. 63. On the other hand, some commenters argue that wireless providers should not be able to obtain access to UNEs. *See* BellSouth Comments at 46-53; SBC Comments at 24.

services, CMRS providers also qualify for access to UNEs, subject to the limitations described herein.[468]

141. We find that our interpretation of sections 251(c)(3) and 251(d)(2) is the most reasonable because it ensures that the powerful regulatory tools made available through those provisions are focused on opening the bottleneck markets largely controlled by incumbent LECs. Given that unbundling is one of the most intrusive forms of economic regulation—and one of the most difficult to administer—it is unlikely that Congress intended to apply unbundling more generally absent an unambiguous mandate. Although we recognize that the Act's general purpose is to open all telecommunications markets to competition, section 251 of the Act is designed to achieve that goal in markets for local exchange services. Therefore, we believe it is more appropriate to interpret section 251(c) and (d) as applying to only those services that compete directly against traditional incumbent LEC services.

142. We disagree with those commenters that argue that section 251(d)(2) compels us to conduct an analysis of every possible service that a requesting carrier might want to offer.[469] Because section 251(d)(2)'s edict is far from clear, the Commission can use its discretion to reasonably interpret the statute.[470] Only if the statute were unambiguous would the

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[468] We grant the portion of the ATTWS/VoiceStream Nov. 19, 2001 Petition requesting that the Commission declare that CMRS providers are entitled to access to UNEs, as long as the CMRS provider meets the requirements outlined throughout this Order. ATTWS/VoiceStream Nov. 19, 2001 Petition at 6; *see also* Progress Telecom Comments at 6 ("Nothing in the Communications Act . . . even remotely suggests that a requesting carrier must use the standalone UNEs for the provision of *wireline* services in order to obtain them from the incumbent LECs.").

[469] SBC Reply at 61-67.

[470] *Chevron U.S.A., Inc. v. Natural Resources Defense Council*, 467 U.S. 837, 843 (1984).

Commission be compelled to undertake such an analysis as suggested by commenters.

143. *Use of UNEs for Non-Qualifying Services.* In the *Triennial Review NPRM*, the Commission sought comment on whether, if a network element is unbundled for one service, its availability should be limited to that service or whether requesting carriers should be able to use it for any service.[471] We conclude that, once a requesting carrier has obtained access to a UNE to provide a qualifying service, as defined above, the carrier may use that UNE to provide any additional services, including non-qualifying telecommunications and information services. This approach to the use of the network element, which maximizes the use of a network element once an unbundling decision has been made, is most consistent with the concerns raised by the *USTA* court regarding the "costs" associated with unbundling in the first instance.[472] In other words, once the Commission has determined to impose "the costs associated with mandatory unbundling" upon an incumbent LEC, it would be wasteful for the network element not to be put to its maximum use.

144. As discussed above, a requesting carrier must use a network element to provide a qualifying service in order to obtain unbundled access to that network element.[473] Section 251(c)(3) requires that incumbent LECs must provide UNEs to requesting carriers "for the provision of a telecommunications service."[474] Even if we presume that Congress may have intended "services" in section 251(d)(2) to mean "telecommunications services" as used in section 251(c)(3), as we noted above, this interpretation does not necessarily

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471 *Triennial Review NPRM*, 16 FCC Rcd at 22799, para. 38.

472 *USTA*, 290 F.3d at 429.

473 These services also must be offered on a common carrier basis, as explained below.

474 47 U.S.C. § 251(c)(3).

resolve the ambiguity regarding whether mixed use of UNEs is permissible. However, a reasonable interpretation of the Act, and an examination of its purposes, leads us to the conclusion that, when a UNE can be used to provide multiple services, Congress did not intend to require that UNEs be used exclusively to provide qualifying telecommunications services.

145. We note that section 51.100(b) of the Commission's current rules allows mixed use of UNEs.[475] We reaffirm this rule here. Moreover, the Commission's EELs rules were affirmed by the D.C. Circuit, and those rules permit a variety of services to be provided over this combination of network elements so long as a "significant amount of local exchange service" is also provided.[476] Generally, commenters do not contest these rules; instead, they debate how much local service should be required and what conditions should be placed upon that usage (*e.g.*, a collocation requirement).[477] We ensure below, through our impairment analysis and related eligibility requirements, that our decision permitting the use of UNEs for services other than qualifying services does not lead to the "gaming" of our rules. Those issues will be addressed later in this Order within the impairment analysis for each particular UNE.

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[475] 47 C.F.R. § 51.100(b) ("A telecommunications carrier that has interconnection or gained access under sections 251(a), 251(c)(2), or 251(c)(3) of the Act, may offer information services through the same arrangement, so long as it is offering telecommunications services through the same arrangement as well.").

[476] *CompTel*, 309 F.3d at 12-18.

[477] *See, e.g.*, Letter from Cronan O'Connell, Vice President—Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 1 (filed Dec. 19, 2002) (Qwest Dec. 19, 2002 EELs *Ex Parte* Letter) (proposing mixed use as long as 51% of traffic is local voice).

146. Allowing requesting carriers to use UNEs to provide multiple services on the condition that they are also used to provide qualifying services will permit carriers to create a package of local, long distance, international, information, and other services tailored to the customer. Offering packages of services in one integrated offering is a marketing method increasingly utilized by incumbent LECs to sell end users their array of available services.[478] The record shows that carriers must have sufficient flexibility in how they package service offerings to customers in order to be able to fully participate in the telecommunications market.[479] Limiting competitive LECs' use of UNEs to qualifying services only would likely affect their ability to meaningfully compete against incumbent LECs.[480] Moreover, such an

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[478] Illinois Commission Comments at 3; Verizon Reply, Attach. B, Reply Declaration of Alfred E. Kahn and Timothy J. Tardiff (Verizon Kahn/Tardiff Decl.) at para. 39 (stating that Verizon has "long agreed with [AT&T's] position that carriers need to offer packages of services if they are to compete successfully.").

[479] CompTel Comments at 55-56; Illinois Commission Comments at 3; LDMI Comments at 17; NewSouth Communications Comments at 54-55; NuVox Comments at 56.

[480] We note that SBC has argued specifically that requesting carriers should not be allowed to use shared transport for intraLATA toll traffic. SBC Comments at 81-84; SBC Reply at 141-42; *But see* ALTS *et al.* Reply at 94-96 (responding in opposition to SBC on this point). SBC notes that some competing carriers that have purchased the shared transport UNE to provide local exchange service have asserted that they should be permitted to use it for intraLATA toll service as well. SBC Comments at 81 (citing a formal complaint, *CoreComm Communications, Inc. and Z-Tel Communications, Inc. v. SBC Communications, Inc. et al.*, EB-01-MD-017 (Aug. 28, 2001)). As we have previously indicated, the ability to compete in offering intraLATA toll services affects a competing LEC's ability to compete in the local market. *See SBC Communications Inc. Apparent Liability for Forfeiture*, File No. EB-01-IH-0030, Forfeiture Order, 17 FCC Rcd 19923, 19931-32, para. 15 (2002) (citing *Application of Ameritech Michigan Pursuant to Section 271 of the Communications Act of 1934, as amended, to Provide In-Region, InterLATA Services in*

interpretation would hamper a competitive LEC's ability to provide innovative service packages to customers, a result that would directly undermine the Act's explicit goal of encouraging innovation.[481] As the Commission stated in the *Local Competition Order*, Congress intended the opening of local markets "to pave the way for enhanced competition in *all* telecommunications markets, by allowing all providers to enter all markets."[482] To limit competitors' use of UNEs to *only* qualifying services would force requesting carriers to either continue to provide services on a stand-alone basis, contrary to the market trend, or even more perversely, to provide a package of services over duplicative networks or through duplicative network configurations.[483] Either result would effectively preclude a competitor's ability to compete in the market, especially in a market in which the market leader—the incumbent LEC—is not similarly constrained.

Michigan, CC Docket No. 97-137, Memorandum Opinion and Order, 12 FCC Rcd 20543, 20738-40, paras. 377-78 (1997)). Under our decision here, once a requesting carrier gains access to the shared transport UNE to provide local service, the requesting carrier may also use it to provide *any* additional services, regardless whether those services are qualifying or non-qualifying. Accordingly, in light of the discussion above, we reject SBC's argument.

[481] Preamble to the 1996 Act; *see also* 47 U.S.C. § 157 nt ("The Commission . . . shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans.").

[482] *Local Competition Order*, 11 FCC Rcd at 15506, para. 4.

[483] The same analysis applies in this context as in the commingling context. AT&T claims that the commingling ban creates a competitive barrier because it effectively requires competitive LECs to establish two parallel networks—one for local traffic and one for access traffic. AT&T Reply at 293. Furthermore, while it is theoretically possible to require a regime of differentiated pricing under which qualifying traffic would be priced at TELRIC and other traffic would be priced at market rates, such a regime would require undue policing of customer usage and would be administratively impractical and burdensome.

147. Allowing the use of UNEs in this manner is similar to the approach the Commission adopted in its *Collocation Remand Order* for multi-functional equipment.[484] In that Order, the Commission required incumbent LECs to allow the collocation of competitive LEC equipment that contained functions that would not meet the standard as stand-alone functions, recognizing that "allowing the collocation of multi-functional equipment is critical to the realization of Congress's goal of promoting competition and technical innovation."[485] The Commission acknowledged that competitive LECs must be able to realize the same productivity increases that developments in new technologies offer.[486] For these reasons, the Commission found that as long as the primary function satisfies the requisite collocation test, the other functions are also permitted.[487] Here, we follow a similar rationale. Our approach ensures that a UNE is used for appropriate purposes but also recognizes that the market and end users may benefit from the use of the UNE to provide additional services. Furthermore, as a practical matter, if we did not allow carriers to use UNEs to provide services in addition to qualifying services, we would effectively limit a requesting carrier's ability to use innovative multi-functional collocation equipment. Carriers would be able to collocate multi-functional equipment, as allowed by the *Collocation Remand Order*, but, under a rule restricting the use of UNEs,

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[484] *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Fourth Report and Order, CC Docket No. 98-147, 16 FCC Rcd 15435, 15454, para. 36 (2001) (*Collocation Remand Order*), *aff'd sub. nom. Verizon Telephone Cos. v. FCC*, 292 F.3d 903 (D.C. Cir. 2002).

[485] *Collocation Remand Order*, 16 FCC Rcd at 15453, para. 33.

[486] *Id.*

[487] *Id.* at 15454, para. 36. The Commission placed certain physical restrictions of the equipment allowed for other functions. *Id.*

would be unable to use of all of the equipment's permitted functions.[488]

148. We disagree with commenters that state that the Act prohibits the use of UNEs for information services.[489] Section 251(c)(3) states that incumbent LECs have a duty "to provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis."[490] The statute does not require that access be provided *exclusively* for telecommunications services. We note, in fact, that this statutory interpretation is consistent with Congress's intent to open existing markets served by incumbent LECs to competitive entry. As the foregoing discussion explains,[491] competitive LECs are providing integrated telecommunications and information service offerings in direct competition with the incumbent LEC provision of these services.[492] Moreover, such a rule may prohibit the packaging of services that would be considered advanced telecommunications capabilities, but are not telecommunications services themselves, thus conflicting with the goals of the Act.[493] We reasonably infer that a competitor may use a UNE to provide a broader category of services, provided that the competitor is, in fact, also providing qualifying service over the UNE.[494]

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488 CompTel Comments at 55-56.

489 Next Level Comments at 13 n.26; SBC Comments at 22; Verizon Comments at 71-81; SBC Reply at 88-112.

490 47 U.S.C. § 251(c)(3).

491 *See* Part IV.B.1.

492 *See* NuVox Jan. 15, 2003 *Ex Parte* Letter at 3.

493 *See* 47 U.S.C. § 157 nt ("The Commission . . . shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans.").

494 This issue is discussed further in Part VII.B.

149. *Requesting carriers must offer a service on a common carrier basis.* Finally, we affirm that, in order to gain access to a UNE under section 251(c)(3), a requesting carrier must provide a "telecommunications service," and specifically a qualifying telecommunications service, over that UNE.[495] It cannot, for example, qualify for UNEs to the extent it provides exclusively private carrier services or information services.[496] Section 251(c)(3) uses the term "telecommunications service" and both sections 251(c)(3) and (d)(2) use the term "telecommunications carrier" to define the scope of the unbundling obligation.[497]

150. The Act defines "telecommunications service" as "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used,"[498] and defines "telecommunications carrier" as "any provider of telecommunications services."[499] The Commission has interpreted "telecommunications services" to mean services offered on a common carrier basis, and the D.C. Circuit has affirmed that interpretation.[500] Thus, to obtain access to a UNE, a requesting carrier must use the UNE to provide at least some services on a common, rather than private, carriage basis. We note that this provision of the Act is not ambiguous. Thus, Congress's use of "telecommuni-

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495 47 U.S.C. § 251(c)(3).

496 This issue is discussed further in Part VII.B.

497 47 U.S.C. §§ 251(c)(3) and (d)(2).

498 *Id.* § 153(46).

499 *Id.* § 153(44).

500 *See AT&T Submarine Systems, Inc.*, File No. S-C-L-94-006, 11 FCC Rcd 14885 (1996) (*AT&T Submarine Systems*), *appl. for rev. denied, AT&T Submarine Systems, Inc.*, 13 FCC Rcd 21585 (1998), *aff'd sub nom. Virgin Islands Tel. Corp. v. FCC*, 198 F.3d 921 (D.C. Cir. 1999).

cations service" in section 251(c)(3) has a clear meaning defined by the Act.

151. We find that the Act evokes an implicit tradeoff. In exchange for obtaining UNEs, a requesting carrier must not only provide services that compete head-to-head against the incumbent LEC, but must do so on a basis that ensures that the benefits of competition accrue to the general public. We find that it is reasonable to interpret the Act in a manner that ensures the availability of UNEs is not boundless and is appropriately limited to the furtherance of clear statutory purposes.[501]

152. Generally stated, a common carrier holds itself out to provide service on a non-discriminatory basis.[502] A private carrier, on the other hand, decides for itself with whom and on what terms to deal.[503] Common carrier status has been assessed by the Commission and the courts by the application of the two-part *NARUC* test: (1) whether the carrier "holds himself out to serve indifferently all potential users"; and (2)

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[501] It is also fundamentally fair that carriers that choose to escape some of the regulation necessary to become a common carrier do not have the same benefits available to those carriers that do bear those burdens.

[502] *See AT&T Submarine Systems*, 11 FCC Rcd at 14885; *see also* 47 U.S.C. § 153(10) ("The term 'common carrier' or 'carrier' means any person engaged as a common carrier for hire, in interstate or foreign communication by wire or radio . . . .").

[503] *See Southwestern Bell Telephone v. FCC*, 19 F.3d 1475, 1481 (D.C. Cir. 1994) ("If the carrier chooses its clients on an individual basis and determines in each particular case 'whether and on what terms to serve' and there is no specific regulatory compulsion to serve all indifferently, the entity is a private carrier for that particular service and the Commission is not at liberty to subject the entity to regulation as a common carrier" citing *National Ass'n. of Regulatory Utility Commissioners v. FCC*, 533 F.2d 601, 608-09 (1976) (*NARUC II*); *National Ass'n of Regulatory Utility Commissioners v. FCC*, 525 F.2d 630, 643 (1976) (*NARUC I*)).

whether the carrier allows customers to "transmit intelligence of their own design and choosing."[504]

153. Common carrier services may be offered on a retail or wholesale basis because common carrier status turns not on *who* the carrier serves, but on *how* the carrier serves its customers, *i.e.*, indifferently and to all potential users. For example, residential local voice services typically are both retail services and common carrier services because they are sold to end users through generally available offerings. Carriers that offer residential local voice services do not generally make individualized decisions whether and on what terms to deal with their customers. Likewise, although access services are wholesale offerings when sold to other carriers, they also are common carrier services when offered indifferently to all members of a particular class of customers. For example, if a carrier tariffed an access offering and made it available to other carriers as an input for their retail interexchange service, such access service would be a common carrier service. In contrast, the self-provision of access services used solely as an input to provide a retail interexchange service does not qualify as the provision of exchange access on a common carriage basis. Instead, in that instance, the carrier is providing exchange access to itself on a private carriage basis. Therefore an interexchange carrier would not be eligible to obtain a UNE exclusively to provide exchange access to itself in order to provide a retail interexchange service.

3. Implicit Support Flows

a. Background

154. In the *USTA* decision, the D.C. Circuit addressed the question of implicit support flows and their relationship to the

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[504] *NARUC II*, 533 F.2d at 608-09. Commission and court precedent provides guidance as to the characteristics of common carrier services. *Id.*; *NARUC I*, 525 F.2d at 644.

Commission's decision making under section 251. The court concluded, among other things, that the Commission had not adequately explained its decision to adopt nationwide unbundling requirements in light of the implicit support flows found in telecommunications rates.[505] In this Part, we explain how our new impairment standard will address the concerns voiced by the D.C. Circuit and describe the nature and extent of existing implicit support flows.

155. In reaching the conclusion that the Commission's explanation was inadequate, the court expressed concerns about the Commission's approach to unbundling both in areas where the incumbent LEC's retail rates may exceed its costs (presumably referring to historic costs) and in areas where incumbent LEC retail rates may be below cost, although the court raised different concerns in each case. The court noted that "[c]ompetitors will presumably not be drawn to markets where customers are already charged below cost," although it recognized that competitors might be drawn to such areas if the new entrant could sell complementary services at prices high enough to offset the low local exchange rates.[506] While questioning entry into the higher cost markets, the court found the "gap in the Commission's reasoning . . . greatest" in requiring unbundling "in the other segments of the markets, where presumably ILECs must charge *above* cost . . . in order

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[505] *USTA*, 290 F.3d at 422-23. In the *Iowa Utilities Board* decision, the Supreme Court had previously rejected BOC arguments concerning implicit support flows, noting that "[section] 254 requires that universal-service subsidies be phased out, so whatever possibility of arbitrage remains will be only temporary." *Iowa Utils. Bd.*, 525 U.S. at 393-94.

[506] *USTA*, 290 F.3d at 422. Thus, as the court suggested, even where the rate for an individual customer service offering may not cover the incumbent LECs' fully distributed historical book cost, that does not mean that such customers as a group are unprofitable or undesirable to serve.

to offset their losses in the subsidized markets . . . ."[507] As explained below, however, the granular impairment analysis we adopt today, by focusing on the economic and operational viability of entry in different market segments, provides for a modification of the impairment standard that addresses these concerns, while supplying the detailed explanation the *USTA* court sought.

156. As the D.C. Circuit noted, the rates for telecommunications services historically have included implicit support flows between different classes of customers and geographic areas. In general, as the court recognized, these implicit support flows have tended to result in rates that are lower than they otherwise would be for residential and rural customers and rates that are higher than they otherwise would be for business and urban/suburban customers.[508] These implicit support flows still exist in many of the rates regulated by the state commissions, including those for local exchange service, intrastate exchange access, and intrastate toll rates. Such implicit support flows have also traditionally been found in the rates for interstate exchange access, and interstate toll service[509] subject to the Commission's regulatory juris-

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[507] *Id.* (emphasis in original).

[508] *Id.*

[509] These implicit support flows result, in large part from rate averaging between rural and suburban/urban areas and the recovery of certain non-traffic sensitive costs through traffic sensitive per minute rates, which over-recovers costs from higher volume users, often business customers. *See generally, Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Low-Volume Long Distance Users, Federal-State Joint Board On Universal Service*, CC Docket Nos. 96-262, 94-1, 99-249, 96-45, Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249 and Eleventh Report and Order in CC Docket No. 96-45, 15 FCC Rcd 12962, 12971-72, para. 23 (2002) (*CALLS Order*) *aff'd in part, rev'd in part, and remanded in part sub nom. Texas Office of Public Utility Counsel v. FCC*, 265 F.3d 313 (5th Cir. 2001). The court affirmed the *CALLS Order* in most respects, but remanded for further analysis and explanation the decisions

diction.[510] Implicit support flows have traditionally been justified as supporting the universal availability of local exchange telephone service at affordable rates, and ensuring reasonable interexchange toll rates for customers in all parts of the country.

157. Despite relatively widespread agreement on such broad general statements concerning implicit support flows,[511] this area is more complex than it might initially appear. The existence of "below cost" residential local exchange service rates does not mean that such customers are "unprofitable" to serve. Determining whether a customer class is desirable to serve[512] requires a comparison of costs and all potential revenues for the class, which will substantially exceed the local exchange service rate.[513] In addition, describing certain

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to size the Interstate Access Support (IAS) mechanism at $650 million and to adopt the 6.5 % "X-factor."

[510] The original Communications Act of 1934 established a bifurcated system for the regulation of telecommunications, generally leaving the regulation of communications that originated and terminated within the same state to the state commissions, while this Commission regulated communications that originated and terminated in different states, except in the case of multi-state local exchange areas. *See* 47 U.S.C. §§ 152(b)(2), 221(b). The 1996 Act also gives various responsibilities concerning the implementation of the local competition provisions to this Commission. *Iowa Utils. Bd.*, 525 U.S. at 378. In addition, section 253 requires the Commission to preempt state and local requirements that "prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service." 47 U.S.C. § 253(a), (d).

[511] *But see* AT&T Willig Reply Decl. at paras. 50-56; WorldCom Reply at 26-27; WorldCom Reply, Declaration of Daniel Kelley (WorldCom Kelley Reply Decl.) at paras. 60-64.

[512] Even if the class as a whole is not desirable to serve, certain categories of customers within the larger class will typically be desirable based on their usage patterns or cost characteristics.

[513] Residential customers typically take a number of different services from their LEC in addition to local exchange service. These

rates as being "above or below cost" itself involves complex questions concerning how costs should be defined. In the context of implicit support flows, describing a rate as "below cost" typically means that the rate is lower than the incumbent LEC's fully distributed historical cost of providing service.[514] This definition of "cost" does not necessarily provide a valid basis for comparison since in a fully competitive market, firms would typically price a service offering at long run incremental cost, which in the telecommunications industry may be considerably lower than fully distributed historical cost.[515] Moreover, telecommunications prices are not static, and will change over time in response to increased competition.[516]

158. Recognizing the potential effect of implicit support flows on the development of competition, the 1996 Act

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include vertical features, as well as federal and state access charges typically paid to the local exchange service provider unless the service is provided through resale, in which case the incumbent LEC would receive the access charge revenues. *See Local Competition Order*, 11 FCC Rcd at 15646-47, para. 292. The LEC may also receive explicit support payments, and provide the customer with long distance service and Internet access service.

[514] It is worth noting that, except for smaller incumbent LECs and some mid-sized incumbent LECs, both the Commission and state regulators have generally moved from traditional rate-base/rate-of-return regulation to the use of "price cap" or "incentive" type regulation for telecommunications rates, which does not involve a direct link between cost showings and rate levels. Under price cap or incentive type regulation, for example, a regulated carrier's rates may be frozen for a period of time or subject to periodic adjustments that reflect factors such as the rate of inflation, historic productivity gains and certain cost changes deemed to be beyond the carrier's control.

[515] In addition, economic theory does not provide a clear answer to the question of how joint and common and fixed costs should be allocated for costing purposes. This is particularly problematic in the telecommunications industry due to the very high proportion of joint and common costs and fixed costs.

[516] *See, e.g.*, AT&T Willig Reply Decl. at para. 60.

addresses this issue in section 254. This provision directs the Commission, after consultation with the Joint Board, to establish specific, predictable, and sufficient federal support mechanisms to preserve and advance universal service.[517] In particular, section 254(e) states that federal support mechanisms "should be explicit and sufficient to achieve the purposes of this section."[518] At the same time, section 254(b) establishes a list of principles that the Commission must use in establishing its policies for the preservation and advancement of universal service, including the principle that consumers in rural, insular, and high-cost areas should have access to telecommunications services at rates that are "reasonably comparable to rates charged for similar services in urban areas."[519] In fact, section 254(g) of the Act requires nationwide averaging of interstate toll rates.[520] In addition, section 254(f) provides that the "[s]tate[s] may adopt regulations not inconsistent with the Commission's rules to preserve and advance universal service."[521]

159. The extent of interstate implicit support flows has decreased substantially since passage of the 1996 Act. In response to section 254, the Commission has taken a number of major steps to remove implicit support flows from interstate access charges and develop federal universal service support mechanisms that are portable, *i.e.*, available not only to the incumbent local exchange carrier, but also to other qualifying local exchange carriers. These measures are intended to make universal service support compatible with

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517 47 U.S.C. § 254.

518 *Id.* § 254(e).

519 *Id.* § 254(b)(3).

520 *Id.* § 254(g); 47 C.F.R. § 64.1801.

521 47 U.S.C. § 254(f). The Commission has not interpreted section 254 as requiring the elimination of implicit support flows contained in state rates.

the increasingly competitive marketplace for telecommunications.

160. In the *CALLS Order*, the Commission adopted a five-year transitional interstate access and universal service reform plan for price cap carriers.[522] The Commission's decision was intended to "[reform] our interstate access charge regime to identify implicit universal service support and to remove such implicit support from our interstate access charges, and . . . [establish] new universal service mechanisms."[523] At the same time, the *CALLS Order* "keeps rates affordable in high cost areas, by replacing the subsidies with explicit interstate access universal service support."[524] In particular, the Order "creates an explicit interstate access universal service support mechanism . . . to replace the implicit support, and makes interstate access universal service support fully portable among eligible telecommunications carriers."[525] The Commission also reformed the interstate access charge regime and universal service support for rate-of-return carriers in the 2001 *MAG Order*.[526] The Commission has also

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[522] The *CALLS Order* reforms apply only to price cap carriers. The Commission previously reformed interstate access charges in the 1997 *Access Charge Reform Order*. *Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, End User Common Line Charges*, CC Docket Nos. 96-262, 94-1, 91-213, 95-72, First Report and Order, 12 FCC Rcd 15982 (1997).

[523] *CALLS Order*, 15 FCC Rcd at 12973, para. 25.

[524] *Id.* at 12975, para. 32.

[525] *Id.*

[526] *Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, CC Docket No. 00-256, Second Report and Order and Further Notice of Proposed Rulemaking, *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Fifteenth Report and Order, *Access Charge Reform for Incumbent Local Exchange Carriers Subject to Rate-of-Return Regulation*, CC Docket No. 98-77, Report and

taken steps to reform pre-existing universal service support mechanisms in light of section 254.[527]

161. While it would be difficult, if not impossible, to accurately quantify the implicit support flows that remain in state rates, it appears that substantial intrastate support flows remain. This is true even though some states have engaged in rate "rebalancing" in light of the developing competitive environment.[528] At the same time, under the current system of federal/state jurisdiction for telecommunications regulation, the primary responsibility for regulating rates for intrastate telecommunications services[529] rests with the state commissions and is largely beyond our jurisdiction. Thus, under the system of dual federal/state jurisdiction, the states are generally responsible for adjusting the rates for intrastate services to promote consumer welfare and competition.

162. We also note that the vast majority of incumbent telephone companies may qualify for an exemption from, or

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Order, *Prescribing the Authorized Rate of Return From Interstate Services of Local Exchange Carriers*, CC Docket No. 98-166, Report and Order, 16 FCC Rcd 19613 (2001), *recon. pending* (*MAG Plan Order*).

[527] *See, e.g., Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Ninth Report and Order and Eighteenth Order on Reconsideration, 14 FCC Rcd 20432 (1999) (*Ninth Report and Order*), *remanded sub nom. Qwest Corp. v. FCC*, 258 F.3d 1191 (10th Cir. 2001). The *Ninth Report and Order* established a federal high-cost universal service support mechanism for non-rural carriers based on forward-looking economic costs. *Id.* at 20434-35, para. 2. The Commission is considering the Joint Board's recommendations regarding the remand of the *Ninth Report and Order*. *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Recommended Decision, 17 FCC Rcd 20716 (2002).

[528] *See, e.g.*, Covad Reply at 52-53 (creation of intrastate universal service fund in California).

[529] As previously discussed, the 1996 Act gives the Commission a role in establishing the principles to be used in setting rates for UNEs and the discounts that apply to services when they are ordered for the purpose of resale. *See generally supra* note 510.

modification or suspension of the Commission's unbundling requirements under section 251(c) with the result that the scope of the issues posed by implicit support is further limited. In particular, section 251(f)(1) contains an exemption from the Commission's unbundling requirements for rural telephone companies, which provides that

> [s]ubsection (c) of this section [the unbundling requirements] shall not apply to a rural telephone company until (i) such company has received a bona fide request for interconnection, services, or network elements, and (ii) the State commission determines . . . that such request is not unduly economically burdensome, is technically feasible, and is consistent with section 254 . . . .[530]

Section 251(f)(2) also provides for suspensions and modifications of the requirements of section 251(b) and (c), which includes unbundling obligations, for "local exchange carrier[s] with fewer than 2 percent of the Nation's subscriber lines installed in the aggregate nation-wide" in certain circumstances.[531] Only the BOCs and Sprint exceed the 2 percent standard and thus would not be eligible to seek relief under the provisions of this section.[532]

b. Discussion

163. As explained below, by focusing on the economic and operational viability of entry in different market segments, our revised impairment standard addresses the issue of implicit support flows in a manner that is responsive to the concerns raised in the D.C. Circuit's *USTA* decision. At the same time, we conclude that the statute is best interpreted as giving the Commission considerable discretion to address the

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530 47 U.S.C. § 251(f)(1). Section 153(37) defines a rural telephone company. 47 U.S.C. § 153(37).

531 *Id.* § 251(f)(2).

532 *Trends in Telephone Service May 2002 Report* at 8-5.

relationship between implicit support flows and our impairment analysis. In particular, the statute does not specify how the Commission is to address this issue, although it does contain a number of provisions that relate to the existence of implicit support flows. For example, Congress addressed issues related to implicit support flows in section 254 of the Act, but chose not to include language addressing how the existence of implicit support flows should factor into our impairment analysis. In addition, the statute allows the state commissions to limit the extent of unbundling, and thereby address possible issues arising from unbundling and implicit support flows, for all but the largest incumbent LECs. In particular, section 251(f)(1) and (2) provide for an exemption from section 251(c) requirements for rural carriers, and permit suspension or modification of the section 251(c) requirements for carriers serving, in the aggregate, less than two percent of the nation's access lines.[533] Moreover, section 271, which governs BOC in-region, interLATA entry, requires that they provide local loops, local switching and local transport on an unbundled basis throughout their service areas without regard to the existence of implicit support flows.[534] Thus, we conclude that the Act leaves the Commission with substantial discretion to address the

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[533] Thus, while the Commission has not interpreted the statute to require the development of comparable explicit support mechanisms at the state level, sections 251(f)(1) and (2) effectively permit the states to address the relationship between unbundling and implicit support flows in state rates by allowing the state commissions to limit unbundling for all but the largest incumbent LECs. This provision as well shows that Congress provided for mechanisms other than the impairment standard for the handling of implicit support flows.

[534] 47 U.S.C. § 271(c)(2)(B)(iv), (v), (vi). As discussed below, we interpret the "unbundling" requirement in section 271 to require that the network elements enumerated in the competitive checklist be priced based on the pricing standards in sections 201 and 202 of the Communications Act when they are not required to be unbundled pursuant to section 251(c)(3). *See infra* Part VIII.A.

appropriate relationship between implicit support flows and network unbundling within the confines of reasoned decision-making.

164. As explained below, the impairment standard adopted by the Commission and reflected in the more granular state commission proceedings mandated by this Order addresses the existence of implicit support flows in several ways. In general terms, the new impairment standard provides that a requesting carrier is deemed to be impaired when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers that are likely to make entry into a market uneconomic.[535] In reaching this determination, our new impairment standard generally provides for consideration of any advantages as well as disadvantages that will be experienced by competitive LECs. Our impairment standard also provides for consideration of whether entry is economic by taking into account the potential revenue opportunities available.

165. In determining whether impairment exists, the Commission finds that actual marketplace evidence is the most persuasive and useful evidence, especially information concerning whether new entrants have deployed their own facilities or obtained wholesale facilities from entities other than the incumbent LEC for use in providing competitive retail services. While such market evidence will be given substantial weight, it is not necessarily conclusive or presumptive of a particular outcome without additional information. The Commission will also consider evidence of intermodal competition, when it is presented in the record.

166. Our impairment standard is unlikely to result in unwarranted unbundling in the case of areas and services for which local exchange rates generally exceed the incumbent

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[535] *See* Part V.B.1.d. *supra*.

LEC's costs. In fact, the services in urban areas and the enterprise services, which have tended to be priced "above" the incumbent LEC's "costs" have generally been the first areas to attract competitive entry,[536] probably due to the relatively high revenue opportunities available. Thus, these areas and services are the ones for which marketplace evidence of facilities-based competitive entry is most likely to warrant a finding of no impairment. Our impairment standard also generally provides for consideration of advantages experienced by new entrants as well as the barriers to entry that they encounter. Thus, our impairment standard will take into account circumstances in which the incumbent sets certain retail rates "above" its "cost," in order to provide support for other areas or services with retail rates that are "below cost," although we recognize that such rates are likely to change in response to competitive entry.[537] As a result, our impairment standard, which will be reflected in the granular analysis that the state commissions apply, will generally tend to reduce the likelihood of a finding of impairment in the case of areas and services for which prices are "above" the incumbent LEC's cost, and thus tend to reduce the extent of unbundling required in those areas.

167. Significantly, to the extent that incumbent LECs are required to make UNEs available pursuant to our impairment standard in the case of areas or services for which rates are "above cost," it will be based on an affirmative finding of impairment.[538] At the same time, such unbundling in "above

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536 *See supra* Part IV; *see also* Allegiance Reply at 23.

537 *See supra* note 516.

538 Retail rates that exceed the incumbent's cost of providing service will not necessarily result in facilities-based competitive entry. Rather, competitors are likely to base entry decisions on whether all potential revenues exceed the cost of entry, taking into consideration any countervailing advantages a new entrant may have. *See, e.g.*, WorldCom Reply at 27; AT&T Willig Reply Decl. at para. 61; WorldCom Kelley Reply Decl. at para. 64. In addition, even in such areas, new entrants may

cost" areas will tend to create pressure for the incumbent LECs[539] and state regulators to reduce or eliminate implicit support flows,[540] and establish rates that more closely reflect costs in conjunction with explicit support mechanisms. Insofar as unbundling in such areas brings about pressure for reductions in "above cost" rates, it should not be a matter for regulatory concern unless an incumbent LEC's overall earnings for telecommunications services fall below confiscatory levels.[541] This result is consistent with the Commission's long-standing support for movement toward cost-based rates and explicit support mechanisms.[542] It would

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initially choose not to enter on a facilities-basis due to the very high fixed costs involved.

[539] Incumbent LECs will generally have flexibility to reduce rates appropriately in response to competition.

[540] *See generally* Qwest Reply at 13 (state rate rebalancing); Sprint Reply at 9 n.11 (state rate rebalancing).

[541] *Permian Basin Area Rate Cases*, 390 U.S. 747, 767 (1968).

[542] The Commission has long supported federal rule changes designed to reduce implicit support flows and reflect cost causation principles in conjunction with explicit support mechanisms to protect universal service. The Commission began implementing such changes in the early and mid-1980s when it adopted measures to reform the jurisdictional separations process, which divides incumbent LEC costs between state and interstate operations, and adopted a system of interstate access charges which included a flat-rate end-user charge. For information concerning the initial steps in jurisdictional separations reform, see *Amendment of Part 67 of the Commission's Rules*, CC Docket No. 80-286, Decision and Order, 96 FCC 2d 781 (1984) *adopting* Second Recommended Decision and Order, 48 Fed. Reg. 46556 (Joint Board 1983), *aff'd sub nom. Rural Telephone Coalition v. FCC*, 838 F.2d 1307 (D.C. Cir. 1988). For information concerning the Commission's access charge plan *see, e.g., MTS and WATS Market Structure*, CC Docket No. 78-72, Third Report and Order, 93 FCC 3d 241 (1983); *modified on recon.*, 97 FCC 2d 682, (1984), *modified on recon.* 97 FCC 2d 834 (1984), *aff'd in principal part and remanded in part sub nom, NARUC v. FCC*, 737 F.2d 1095 (D.C. Cir. 1984), *cert denied*, 469 U.S. 1227 (1985); *MTS and WATS Market Structure* and *Amendment of Part 67 of the*

also be in harmony with the general goals of section 254(b) for reform of interstate universal service support flows.

168. Furthermore, our impairment standard, which will be reflected in the granular analysis that the state commissions apply, should not produce unreasonable effects in areas and for services where local exchange rates are "below" the incumbent's "cost" of providing service. We recognize that "below cost" local exchange rates will tend to discourage competitive facilities-based entry, and that the absence of such entry will be considered as evidence of impairment. Our impairment standard, however, also provides for consideration of evidence concerning the full range of revenue opportunities available to carriers providing service over the relevant facilities. Thus, retail local exchange rates that are "below cost" do not mean that competitive entry will necessarily be uneconomic since a competitor will base entry decisions on a comparison of its costs and the full range of available revenue opportunities, not solely the local exchange rate.[543] Moreover, new entrants using alternative technologies may have lower costs than the incumbent LEC even when UNE rates are set at reasonable levels. Competitive entry under these circumstances would benefit consumers by increasing choice.[544]

169. Were our impairment standard to require unbundling for services and areas with "below cost" rates where actual competitive entry does not take place, little harm would

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Commission's Rules, CC Docket Nos. 78-72, 80-286, Decision and Order, 50 Fed. Reg. 939 (1985), *adopting* Recommended Decision and Order, 49 Fed. Reg. 48325 (Joint Board 1984); *MTS and WATS Market Structure* and *Amendment of Part 67 of the Commission's Rules*, CC Docket Nos. 78-72, 80-286, Report and Order, 2 FCC Rcd 2953 (1987), *adopting* Recommended Decision and Order, 2 FCC Rcd 2324 (1987).

[543] For example, a new entrant may offer a premium product or service package designed to be attractive to customers even when priced well above the incumbent LEC's rate for local exchange service.

[544] *See, e.g.*, Allegiance Reply at 22.

result. As previously mentioned, the statute contains an exemption from the unbundling requirements for rural carriers and provides for state modification or suspension of the unbundling requirements for incumbent carriers serving, in the aggregate, less than two percent of the nation's access lines.[545] Thus, the state commissions are fully able to prevent any problems that they believe might result from unbundling requirements in these circumstances. Even without this statutory provision, little harm is likely to result in the event of unbundling requirements in situations where competitors do not actually enter the market.[546]

C. The "Necessary" Standard

170. Section 251(d)(2) requires the Commission, in making its unbundling determination, to consider whether "access to such network elements as are proprietary in nature is necessary."[547] In the *UNE Remand Order*, the Commission gave this interpretation of the "necessary" standard:

> We conclude that a proprietary network element is "necessary" within the meaning of section 251(d)(2)(A) if, taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element would, as a practical, economic, and

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[545] 47 U.S.C. § 251(f)(1), (2).

[546] Until a competitor requests UNEs, most of the smaller incumbent LECs need to do little other than stand ready to negotiate in good faith. The BOCs and the larger independent incumbent LECs will already have incurred the full cost of developing and providing UNEs where entry has taken place.

[547] 47 U.S.C. § 251(d)(2)(A).

operational matter, *preclude* a requesting carrier from providing the services it seeks to offer.[548]

171. In the *Triennial Review NPRM*, the Commission sought comment on whether to change the interpretation of "necessary" that was set forth in the *UNE Remand Order*.[549] We decline to change that interpretation.[550] The D.C. Circuit did not remand to us or vacate the "necessary" standard or instruct us to consider it further.[551] Particularly given how rarely the "necessary" standard is invoked as compared with the "impair" standard (indeed, in this Order we do not analyze any elements under the "necessary" standard), we find no reason to alter course.

D. "At a Minimum"

172. Section 251(d)(2) provides that "the Commission shall consider, *at a minimum*, whether . . . the failure to provide

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[548] *UNE Remand Order*, 15 FCC Rcd at 3721, para. 44 (emphasis in original). The Commission also set forth a definition of "proprietary," which was not challenged in *USTA v. FCC* and is not at issue in this proceeding. *See id.* at 3716-20, paras. 32-40.

In the *UNE Remand Order*, the Commission only found two instances where an element could be considered proprietary and thus susceptible to unbundling under the necessary standard. The Commission found that Ameritech's routing tables in switches "may be proprietary," *Id.* at 3806, para. 247, but the Commission applied the "impair" standard rather than the "necessary" standard because those routing tables were unlikely to distinguish Ameritech's service from its competitors', and because withholding access to the routing tables would jeopardize competition. *Id.* at 3807, paras. 250-51. The Commission also found that services created in the AIN platform and architecture were "proprietary," but found that they were not "necessary," and therefore did not unbundle them. *See id.* at 3875, para. 402, 3881-82, paras. 418-20.

[549] *See generally Triennial Review NPRM*, 16 FCC Rcd at 22790-91, paras. 18, 21.

[550] *See* ALTS *et al.* Comments at 26-27; Eschelon Comments at 6-7; NuVox Comments at 21.

[551] *See generally USTA*, 290 F.3d at 415.

access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer."[552] In reviewing our interpretation of that phrase under the *UNE Remand Order*, the D.C. Circuit found no fault with the Commission's determination that this language allows the Commission to consider factors other than those specified in subparagraphs (A) and (B) of section 251(d)(2) when determining whether or not to require unbundling. With regard to the Commission's authority to "consider other elements," the court stated, "[w]e assume in favor of the Commission that that is so."[553] But the court cautioned restraint, recognizing that any use of factors in addition to impairment must be reasonably and responsibly tied to the statute. The court stated, "to the extent that the Commission orders access to UNEs in circumstances where there is little or no reason to think that its absence will genuinely impair competition . . . we believe it must point to something a bit more concrete than its belief in the beneficence of the widest unbundling possible."[554]

173. Consistent with the admonition of the courts that we not extend the unbundling obligations more widely than required to fulfill the purposes of the Act, we apply the phrase "at a minimum" in section 251(d)(2) with appropriate restraint. In this Order, we have not required the unbundling of any network element in the absence of impairment. Although we continue to find that section 251(d)(2), by its

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552 47 U.S.C. § 251(d)(2) (emphasis added).

553 *USTA*, 290 F.3d at 425. The court's discussion was premised on the Commission's determination in the *UNE Remand Order* that additional factors could be used to assess unbundling, whether as a further limitation on unbundling despite the presence of impairment, or as a justification of unbundling in the absence of evident impairment. *UNE Remand Order*, 15 FCC Rcd at 3745, para. 101.

554 *Id.*

express terms, permits us to consider, where appropriate, "other" factors closely tied to the purposes of the statute in reaching an unbundling determination,[555] we have not found on this record any other factors that would require unbundling in the absence of impairment. We have, however, used this authority to inform our consideration of unbundling in contexts where some level of impairment may exist, but unbundling appeared likely to undermine important goals of the 1996 Act.[556] Specifically, in our analyses of fiber-to-the-

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[555] Many commenters urge us to affirm this approach. *See* BellSouth Comments at 26-28; CompTel Comments at 29; GCI Comments at 29; HTBC Comments at 42; NuVox Comments at 33-35; SBC Comments at 11-12, 18, 21-22 (arguing that the Commission should take into account the goals of encouraging facilities-based competition, the deployment of advanced technologies, and protecting competition where it already exists); Verizon Comments at 26; HTBC Reply at 20; Qwest Reply at 18; *see also* UNE Platform Coalition Comments at 24 (urging Commission to take public interest into account in unbundling analysis); SBC Reply at 50 (urging Commission to examine whether unbundling will benefit or harm "competition" in particular circumstances). *But see* AT&T Comments at 41-43 (arguing that the Commission cannot consider whether unbundling would be harmful to competition, and that unbundling necessarily promotes competition and facilities-investment); CompTel Comments at 25 (arguing that the Commission can fully satisfy section 251(d)(2) by considering only "impair"), 26-27 (arguing that consideration of section 706 could only lead the Commission to order unbundling in the absence of impairment), 28-30 (arguing that "at a minimum" can only be used to order unbundling in the absence of impairment).

[556] Thus, we disagree with commenters that suggest that we cannot, consistent with the Act, consider whether unbundling will deter investment or whether unbundling is consistent with the goals of section 706. *See* Allegiance Comments at 11-12; ALTS *et al.* Comments at 29-35; CompTel Comments at 18, 27-28. We do not read section 251 in isolation, but in the larger context of the 1996 Act, including all its expressed purposes such as those contained in section 706. Indeed, the courts require as much. *See Iowa Utils. Bd.*, 525 U.S. at 388 (requiring the Commission "to apply *some* limiting standard, rationally related to the goals of the Act," as it considers "necessary" and "impair") (emphasis in original); *USTA*, 290 F.3d at 425 (urging the Commission to engage in

home (FTTH) and hybrid loops, we have considered the goal set forth in section 706 of the Act, that the Commission "shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans,"[557] as well as the presence of intermodal competition. In sum, we will continue to weigh other factors that may be relevant

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some analysis of the trade-offs between unbundling and investment incentives).

[557] The Act defines "advanced telecommunications capability" "without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology." *Id.* § 157 nt (c)(1). The Commission considers services with upstream and downstream speeds in excess of 200 kbps to display "advanced telecommunications capability." *Third Section 706 Report 2002*, 17 FCC Rcd at 2850, para. 9.

Our approach is entirely consistent with section 706 and the language of the Preamble to the 1996 Act, which states that the statute is "[a]n Act [t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." Preamble to the 1996 Act. It is also consistent with section 7(a), which states that "[i]t shall be the policy of the United States to encourage the provision of new technologies and services to the public." 47 U.S.C. § 157(a); *see also infra* Part VI.A.4.a.(iv)(b); Covad Comments at 78; FTTH Council Comments at 2-3, 6; HTBC Comments at 43; TIA Comments at 23; USTA Comments at 5; SBC Reply at 51-52.

We disagree that the goals of sections 251 and 706 cannot be balanced because, as several commenters argue, these statutory provisions are aimed at separate and distinct product markets. Likewise, we also disagree that the goals of section 706 can only be encouraged by unbundling. *See* ALTS *et al.* Comments at 31-32; BellSouth Comments at 32; CompTel Comments at 26; McLeodUSA Comments at 5; NuVox Comments at 12-13, 34. *See generally* Allegiance Comments at 14-15; ASCENT Comments at 22-25; Illinois Commerce Commission Comments at 4; Moline Dispatch Publishing Comments at 7; Sprint Comments at 10. Rather, we find that markets covered by section 251 may well overlap with the markets addressed by section 706. And, as explained above, unbundling may not always promote the goals of section 706.

to a particular unbundling determination, but we will do so with an eye to the specific goals of the Act, as the D.C. Circuit has indicated we may do.

174. We reject arguments that the Commission can only use the "at a minimum" language to decline to unbundle despite impairment in order to remain faithful to the courts' admonitions to find a "limiting standard" for unbundling or that the Commission must decline to unbundle if unbundling would frustrate other Congressional goals.[558] First, we note that Congress did not specify what it meant by "at a minimum"; thus we disagree that the meaning of the phrase is not subject to interpretation. In addition, as explained above, we find that it is reasonable to interpret the phrase to permit the Commission to make unbundling determinations in light of the Act's many and conflicting goals, not just goals that would limit incumbent LECs' unbundling obligations. Finally, section 251(d)(2) does not direct us to unbundle only if all goals of the Act are satisfied by doing so. Rather, we must balance all these goals as we make our unbundling determinations. For similar reasons, we disagree that "at a minimum" can only be used to order unbundling in the absence of impairment.[559]

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[558] *See* SBC Comments at 11 n.16; Verizon Comments at 26; Qwest Reply at 18-20; Verizon Reply at 45, 47-50. *But see* Minnesota Department of Commerce Reply at 6 (questioning why Commission would impose a higher standard for unbundling than "necessary" and "impair" now when capital markets are restricted).

[559] *See, e.g.*, ALTS *et al.* Comments at 35-36; CompTel Comments at 29-30; UNE Platform Coalition Comments at 21-23; WorldCom Comments at 52. Contrary to the views of AT&T, we find that unbundling where there is no impairment does not promote competition without any costs, even if new entrants "prefer" to use their own facilities where possible. *See* AT&T Comments at 46-47. Rather, as explained above, unbundling has administrative and social costs that the courts have cautioned us to consider carefully, and we cannot simply hope that competitors will choose to use their own facilities rather than UNEs. *See supra* Part V.B.

175. We disagree that the Commission must find, under section 706, that advanced telecommunications capability is not being deployed in a reasonable and timely fashion before it can take section 706 into account in its unbundling analysis.[560] Rather, as explained above, we find that the "at a minimum" language permits us to take many goals into account, including those expressed in section 706. While the Commission may have found that the goals of section 706 are being met on a reasonable and timely basis, that does not preclude us from taking measures to ensure that that continues to be the case or to accelerate the achievement of those goals.

176. We also reject parties' arguments that taking other goals into account, such as the Act's goals in section 706, amounts to forbearance under section 10(d), which is prohibited unless section 251(c) has been "fully implemented."[561] We are not "forbearing"; rather we are applying section 251(d)(2) to determine where unbundling serves the goals of the Act.[562] Contrary to arguments otherwise,[563] our approach is fully consistent with the *Advanced Services Order*, where we concluded that "section 706(a) directs the Commission to use the authority granted in

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560 *See* Consumer Federation *et al.* Comments at 20-21.

561 *See* CompTel Comments at 19. *See generally* Allegiance Comments at 13; AT&T Comments at 87.

562 Likewise, because we use section 706 as an "at a minimum" consideration as described above, we need not visit the question of whether we can or should forbear from section 251. *See* HTBC Comments at 45-47 (arguing that the Commission should forbear from unbundling broadband facilities, and that section 251 is "fully implemented" because incumbent LECs are subject to intermodal competition for broadband services); Progress & Freedom Foundation Comments at 34 (arguing that a grant of section 271 authority means that section 251 is "fully implemented" in that state); TIA Comments at 23-24. *But see* WorldCom Reply at 37-38.

563 *See* AT&T Comments at 86.

other provisions . . . to encourage the deployment of advanced services,"[564] and with *ASCENT v. FCC*, where the D.C. Circuit admonished the Commission for the equivalent of forbearing from section 251(c).[565] The Commission has not proposed to relax in any way the requirements of section 251(c)(3), which establishes "'*where* unbundled access must occur, not *which* [network] elements must be unbundled.'"[566] Rather, we take section 706 into account in interpreting and applying section 251(d)(2), a separate provision. Indeed, section 251(d)(2), particularly the "at a minimum" clause, grants us all the authority we need to take Congress's goals into account as we decide "*which* [network] elements must be unbundled.'"[567] We do not need any "authority" from section 706(a) to take this approach.

177. We also disagree that section 706's direction to use measures that "promote competition in the local telecommunications market" means that the Commission cannot read section 706 to limit any unbundling obligations.[568] To the contrary, as explained above, the "at a minimum" language of section 251(d)(2) expressly contemplates that the Commission will take other factors into account, and we find

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564 *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 98-147, 98-11, 98-26, 98-32, 98-15, 98-78, 98-91, Memorandum Opinion and Order and Notice of Proposed Rulemaking, 13 FCC Rcd 24012, 24045, para. 69 (1998) (*Advanced Services Order*); *see also id.* at 24046, para. 74 ("[S]ection 706(a) gives this Commission an affirmative obligation to encourage the deployment of advanced services, relying on our authority established elsewhere in the Act.").

565 *ASCENT v. FCC*, 235 F.3d 662, 666 (D.C. Cir. 2001).

566 *Iowa Utils. Bd.*, 525 U.S. at 391 (quoting *Iowa Utils. Bd v. FCC.*, 120 F.3d at 810) (emphasis in 8th Circuit opinion, bracketed language inserted in Supreme Court opinion).

567 *Id.*

568 *See* AT&T Comments at 85.

that the explicit goals of the Act such as those contained in section 706 most likely reflect Congress's intent for what we should take into account. And in any event, we find in neither section 706 nor section 251 a direction that one provision always "trumps" the other; through our approach we seek balance between them both.

178. Also regarding section 706, we note that the discussions below of individual UNEs address the role that investment incentives play in our unbundling determination. Parties have taken widely divergent views throughout this proceeding on the question of whether mandatory unbundling obligations promote or deter investment in new infrastructure.[569] In general, the incumbent LECs and equipment manufacturers take the position that unbundling deters both incumbent LEC and competitive LEC capital investment.[570] The competitive industry criticizes the incumbent LEC studies as incomplete, skewed and

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[569] We address arguments concerning specific UNEs in the relevant sections. *See infra* Parts VI.A. and VI.D.

[570] *See, e.g.*, ACS Comments at 6-7; Alcatel Comments at 6-11; BellSouth Comments at 71-72; California Commission Comments at 8-10; GSA Comments at 11-12; Maine CLEC Coalition Comments at 4-6; Progress & Freedom Foundation Comments at 9-31, Attach., *Investment Incentives and Local Competition at the FCC*, Media Law & Policy, IX, 1, 1-18, Larry F. Darby and Joseph Fuhr; Ohio Commission Comments at 16; Qwest Comments at 14-16; Verizon Comments at 27-29, 34-36; ACS Reply at 6-8; AT&T Reply at paras. 126-36, 339-43; El Paso and CTC Reply at 11-16; Progress & Freedom Foundation Reply at 3; Qwest Reply at 13-15 and Attach. A, Declaration of Joseph Farrell at para. 5; SBC Reply at 22-45; *see Stimulating Investment and the Telecommunications Act of 1996*, Robert D. Willig, et. al. (AT&T Oct. 11, 2002 Willig Stimulating Investment) at 5, *in* Letter from Joan Marsh, Director, Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Oct. 11, 2002) (AT&T Oct. 11, 2002 *Ex Parte* Letter); Letter from Debbie Goldman, Research Economist, CWA, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-4 (filed Jan. 14, 2003) (CWA Jan. 14, 2003 *Ex Parte* Letter).

inaccurate.[571] In contrast, the competitive industry advances its own studies that ascertain that certain unbundling obligations do not hinder, but rather encourage incumbent LECs to make capital investments to modernize their networks and deploy new services to meet increasing competition.[572] In addition, competitors assert that they make capital investments where such investments are economically rational and use UNEs elsewhere; that is, they contend that the availability of UNEs does not detract from competitive

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[571] AT&T Reply at paras. 346-59; El Paso and CTC Reply at 16-23; Letter from Joan Marsh, Director—Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach., C. Michael Pfau, *Correcting the RBOCs' Empirical Analysis of the Linkage Between UNE-P and Investment* (AT&T Correcting) at 12, 14 (filed Oct. 16, 2002) (AT&T Oct. 16, 2002 *Ex Parte* Letter); Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Nov. 7, 2002) (Z-Tel Nov. 7, 2002 *Ex Parte* Letter); Letter from Marc Goldman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 13 (filed Nov. 13, 2002) (WorldCom Nov. 13, 2002 *Ex Parte* Letter); Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Nov. 27, 2002) (WorldCom Nov. 27, 2002 *Ex Parte* Letter); Letter from David R. Conn, Deputy General Counsel, McLeodUSA, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-6 (filed Jan. 8, 2003) (McLeodUSA Jan. 8, 2003 *Ex Parte* Letter); Letter from David R. Conn, Deputy General Counsel, McLeodUSA, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-4 (filed Jan. 17, 2003) (McLeodUSA Jan. 17, 2003 *Ex Parte* Letter).

[572] AT&T Willig Decl.; Letter from Michael J. Hunseder, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed June 28, 2002) (AT&T June 28, 2002 *Ex Parte* Letter); *Innovation, Investment, and Unbundling: An Empirical Update*, Robert B. Ekelund, and George S. Ford, (Z-Tel Innovation) at 5, *in* Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, (filed Oct. 7, 2002) (Z-Tel Oct. 7, 2002 *Ex Parte* Letter); AT&T Willig Stimulating Investment at 1-7, 28-39.

LECs deploying their own networks.[573] The incumbent LECs, in turn, challenge the competitive LEC studies as flawed and unreliable.[574] The evidence submitted by both sides is inconclusive. The economic studies presented by each side suffer from flaws that undermine their probative value. Studies submitted by the incumbent LECs are generally simple correlation models or state-to-state comparisons lacking adequate efforts to control for or explain other

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[573] AT&T Comments at 44-65; CompTel Comments at 78-82, Declaration of James N. Perry at paras. 9-24; CompTel Comments, Declaration of John Hunt at paras. 1-11; Dynegy Comments at 4-7; Eschelon Comments at 10-15; GCI Comments at 33-41; Indiana Commission Comments at 8-9; Moline and CCG Comments at 6-8; WorldCom Comments, Attach. A, *The Technology and Economics of Cross-Platform Competition In Local Telecommunications Markets*, Richard A. Chandler, A. Daniel Kelley, and David M. Nugent, HAI Consulting, Inc. (WorldCom Technology and Economics) at 88; Sprint Reply at 14-16; WorldCom Kelley Reply Decl. at 13; Z-Tel Reply at 74-90; Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach., *Unbundling and Facilities-Based Entry by CLECs: Two Empirical Tests*, George S. Ford and Michael D. Pelcovits (Z-Tel Unbundling), at 2, and Attach. *Preliminary Evidence on the Demand for Unbundled Elements*, Robert B. Ekelund, and George S. Ford, at 2 (filed Oct. 7, 2002) (Z-Tel Oct. 7, 2002 Unbundling *Ex Parte* Letter); Letter from Genevieve Morelli, Counsel for CompTel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1, 96-97 (filed Oct. 31, 2002) (CompTel and PACE Oct. 31, 2002 *Ex Parte* Letter); WorldCom Nov. 13, 2002 *Ex Parte* Letter at 11; Letter from Phil Marchesiello, Co-Chairman, The Official Committee of Unsecured Creditors of WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 30, 2003) (WorldCom Unsecured Creditors Jan. 30, 2003 *Ex Parte* Letter). Eschelon states that small competitive LECs like itself serving small enterprise customers are also encouraged investment in their own networks where UNEs are available to fill in service territories. Eschelon Comments at 11.

[574] BellSouth Reply at 60-61; BOC Shelanski Decl. at paras. 4-12; SBC Reply at 3-16; Verizon Nov. 18, 2002 *Ex Parte* Letter at 1-7.

relevant variables.[575] Studies submitted by the competitive LECs include multiple regression models, but their conclusions relate more to particular market strategies of some competitive LECs rather than the effect on competitive services that would be provided under an alternate unbundling obligation. Neither the overall levels of competitive LEC activity nor the not insubstantial costs associated with unbundling were generally addressed by either the competitive LECs or the incumbent LECs.[576] That said, we

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[575] BOC Shelanski Decl. at 22. Verizon Reply, Appendix 2, *UNE-P and Investment*, Prepared for BellSouth, SBC, and Verizon, July 2002, (Verizon Unbundled Switching Study). The study consisted of a univariate regression, which AT&T characterizes as a correlation study. AT&T Oct. 15, 2002 *Ex Parte* Letter at 12, 14. AT&T notes that only two cable companies are significantly implementing cable telephony and they do not have franchises in New York, so any comparison between California and New York cable telephony is unsound. Also, the E-911 database used to estimate competitive LEC access lines can only provide an upper bound to competitive access lines and closer to 9.7 to 9.9 million lines as opposed to the 16.4 million lines used by the BOCs in their analysis. The study supposedly showing how high level of UNE-P equates to low facilities-based competitive LEC access lines simply plots competitive LEC facilities-based access lines against competitive LEC UNE-P lines but does not include all states. Pfau duplicates the calculation but includes all states demonstrating that there is no depression of investment. Pfau also claims the BOCs significantly overstated the number of AT&T competitive LEC switches in California and New York by confusing local from long distance tandem switches. AT&T Pfau Correcting at 3-9.

[576] AT&T Willig Decl. The study was a multivariate regression between UNE pricing and incumbent LEC investment. It is methodologically suspect to use investment divided by state population as opposed to the more direct BOC measure of dividing by access lines: BOC access lines as a percentage of state population vary significantly. The author's independent variables of UNE rates, average revenue per access line and the incumbent LEC cost of investment are not well explained, subject to significant errors, and appear suspect lacking significant additional explanation. It is unclear if the error terms are robust, *i.e.*, heteroskedasticity-corrected, standard errors; if not, then conclusions about statistical significance could be inaccurate. The

return to these issues in more detail in the specific unbundling sections below.

E. Role of the States

1. Background

179. Sections 201(b) and 251(d)(1) of the Act authorize and direct the Commission to establish rules to implement the

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author's attributing the lack of significance in many of the variables to simply "noise" cannot be accepted without stronger justification. The competitive LEC access line data may significantly understate actual levels of competition as the data excludes competitive LECs with less than 10,000 access lines in a state. Willig expanded his analysis in AT&T Willig Stimulating Investment, but the essential analysis is unchanged. AT&T Willig Stimulating Investment. In WorldCom Technology and Economics, the authors do not provide an econometric model, but simply view the gross incumbent LEC investment since the 1996 Act and assert that this proves unbundling does not deter incumbent LEC investment. *See* WorldCom Technology and Economics at 88. Such a simple and gross comparison fails to take into account any other possible variables that might explain the investment pattern. Such a gross comparison cannot be given significant weight. *Id.* at 96-97. In Z-Tel Unbundling and in Z-Tel Preliminary Evidence, the two studies use multivariate econometric analysis and demonstrate that there is a downward sloping demand curve for UNE-P: as prices increase quantity demanded of UNEs by competitive LECs decrease. It is difficult to criticize the almost universal economic truism illuminated in the results, but whatever the validity of the results, they do not demonstrate what effect reducing availability of network elements would have on investment. The studies might be more persuasive if the authors attempted to extend their analysis to the direct matter of investment. In Z-Tel Innovation, the study attempts to estimate the market risks of incumbent LECs to determine if the cost of raising capital investigates changed with the introduction of unbundling obligations. The authors concluded that, despite the economic downturn in recent years, the risk of borrowing money for capital spending had not increased. They conclude that unbundling has therefore not decreased incumbent LECs investment. The effect of the decrease in value of incumbent LEC's stock value was not addressed. Even given the results, this study does not address whether or to what extent investment is changed by unbundling obligations, simply concluding that the risk associated with incumbent LECs borrowing funds had not increased in recent years.

network unbundling requirements of section 251(c)(3) and 251(d)(2) of the 1996 Act. Section 201(b) provides that "[t]he Commission may prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this Act."[577] Section 251(d)(1) provides:

> Within six months of the date of enactment of the Telecommunications Act of 1996, the Commission shall complete all action necessary to establish regulations to implement the requirements of this section.[578]

Section 251(d)(2) directs the Commission to perform the "necessary and impair" analysis required to determine what network elements should be made available.[579]

180. The 1996 Act also preserves the states'[580] authority to establish unbundling regulations pursuant to state law as long as the exercise of state authority does not conflict with the Act and its purposes or substantially prevent the Commission's implementation. Section 251(d)(3) requires that, in prescribing and enforcing its regulations to implement the requirements of section 251—

> the Commission shall not preclude the enforcement of any regulation, order, or policy of a State Commission that—
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> (A) establishes access and interconnection obligations of local exchange carriers;
> (B) is consistent with the requirements of this section; and
> (C) does not substantially prevent implementation of the

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577 47 U.S.C. § 201(b).

578 *Id.* § 251(d)(1).

579 *Id.* § 251(d)(2).

580 For purposes of this Order, the term "state" includes the District of Columbia and the Territories and possessions, as defined in section 3(40) of the Act. *Id.* § 153(40).

> requirements of this section and the purposes of this part.[581]

Section 252(e)(3) preserves the state's authority in its review of interconnection agreements:

> Notwithstanding paragraph (2), but subject to section 253, nothing in this section shall prohibit a State commission from establishing or enforcing other requirements of State law in its review of an agreement, including requiring compliance with intrastate telecommunications service quality standards or requirements.[582]

Sections 261(b) and (c) generally preserve state authority to take action pursuant to state law, provided that such action is consistent with the Act and our federal framework.[583]

181. In the *Local Competition Order*, the Commission identified a national minimum list of UNEs that incumbent LECs must make available to new entrants upon request, as required by section 251(d)(2).[584] The Commission delegated to the states the authority to apply section 251(d)(2)—and the Commission's interpretation of that provision's "necessary" and "impair" standards—to require incumbent LECs to make available to new entrants additional network elements beyond those that the Commission identified in its minimum national list.[585]

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581 *Id.* § 251(d)(3).

582 *Id.* § 252(e)(3).

583 *Id.* §§ 261(b), (c).

584 *Local Competition Order*, 11 FCC Rcd 15499.

585 *Local Competition Order*, 11 FCC Rcd at 15641-42, paras. 281-82; *see also* 47 C.F.R. § 51.317(a) and (b) (1996). Original rule 317 provided that, when faced with a request for additional *federal* unbundling beyond that required by the Commission's minimum list, the state could "*decline* to require unbundling of the network element *only if*" that

182. The Supreme Court upheld the Commission's authority to implement the local competition provisions of the 1996 Act, including the unbundling requirements of section 251, in *AT&T Corp. v. Iowa Utilities Board*.[586] The Court found that Congress granted the Commission full authority to regulate with respect to matters addressed by the 1996 Act, even though, in doing so, Congress had "taken the regulation of local telecommunications competition away from the States."[587]

183. In the *UNE Remand Order*,[588] the Commission revisited its unbundling requirements in light of the Supreme Court's remand. In doing so, the Commission, among other things, stated that the source of authority relied upon for Rule 317 in the *Local Competition Order* was section 252(e)(3), which preserves a state's authority under state law when reviewing interconnection agreements.[589] The Commission amended Rule 317 in order to incorporate a revised "necessary" and "impair" standard into that rule.[590] The Commission also modified the language addressing state action with respect to additional unbundling requirements in

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network element did not satisfy the applicable "necessary" or "impair" test. 47 C.F.R. § 51.317(b)(emphasis added).

586 525 U.S. 366. No party challenged the Commission's conclusion that it could authorize the states to apply those standards to require unbundling of additional network elements under federal law. However, the Supreme Court held that the Commission had not properly construed the "necessary" and "impair" standards of section 251(d)(2) and remanded to the Commission for further proceedings consistent with its opinion. *Id.* at 397. Following the Supreme Court's decision, the Eighth Circuit vacated Rule 317 because the rule incorporated the Commission's faulty construction of "necessary" and "impair" in its instructions to the states. *Iowa Utils. Bd. v. FCC*, 219 F.3d at 757.

587 *Iowa Utils. Bd.*, 525 U.S. at 378 n.6.

588 *UNE Remand Order*, 15 FCC Rcd 3696.

589 *Id.* at 3762, para. 145 and nn. 249-50.

590 *Id.* at 3767-68, para. 155.

two respects. First, the Commission's new language provided that "[a] state must comply with the standards set forth in this §51.317 when considering whether to require the unbundling of additional elements."[591] Second, the Commission rules provided that a state could not remove a network element from the national UNE list, but that the state could remove a network element that the state itself had added "in accordance with the requirements of this rule."[592] The Commission described the authority to be exercised by states under new Rule 317 as state law authority preserved by section 251(d)(3) of the Act, which preserves such authority regarding network elements to the extent that it is consistent with section 251 requirements and does not substantially prevent implementation of federal law.[593]

184. In *United States Telecom Ass'n v. FCC*,[594] the D.C. Circuit reversed the revised construction and application of section 251(d)(2) that the Commission had adopted in the *UNE Remand Order*. Among other things, the Court found fault with the Commission's adoption of a "uniform national rule" that mandated provision of unbundled access to most network elements throughout the country.[595] The court held that section 251(d)(2) required "a more nuanced concept of impairment" that took into account possible variations in impairment in different geographic and customer markets.

185. In the *Notice*, we sought comment on the proper role of state commissions in the implementation of unbundling requirements for incumbent LECs in light of the changes that have occurred since the initial implementation of the 1996 Act. Specifically, we sought comment on the extent to which

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591 47 C.F.R. § 51.317(b)(4).

592 *Id.*

593 *UNE Remand Order*, 15 FCC Rcd at 3768, paras. 156-57.

594 290 F.3d at 415.

595 *USTA*, 290 F.3d at 422.

state commissions can create, remove, and implement unbundling requirements and the statutory provisions that would provide authority to states to act, consistent with applicable limitations on delegations of authority to the states.[596]

2. Discussion

186. The Communications Act assigns the Commission the responsibility for establishing a framework to implement the unbundling requirements of section 251(d)(2). In this Order, we create rules for UNEs based on our new impairment standard and marketplace developments over the past three years. We are cognizant of the concern expressed by the court in *USTA* that our prior rules were not narrowly-tailored enough. We recognize that competition has evolved at a different pace in different geographic markets and for different market segments. Thus, to ensure that the proper degree of unbundling occurs, we rely, in certain instances when such analysis is necessary, on market-by-market fact-finding determinations made by the states. While we delegate to the states a role in the implementation of our federal unbundling requirements for certain network elements that require this more granular approach, we make clear that any action taken by the states pursuant to this delegated authority must be in conformance with the Act and the regulations we set forth herein. We find further that the 1996 Act preserved the states authority to prescribe access obligations pursuant to state law in section 251(d)(3), but only to the extent that state laws or regulations do not conflict with or frustrate the Act and its purposes or substantially prevent the federal implementation regime. In short, the statute allows states to continue to exercise federal authority delegated by this Commission or state authority that is consistent with and does not substantially prevent implementation of the federal regime.

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[596] *Triennial Review NPRM*, 16 FCC Rcd at 22815-16, paras. 75-76.

a. Federal Authority and the Role of the States

187. As we explain in this Order, we conclude that a more targeted, granular unbundling analysis is needed in light of the lessons learned over the last three years. To achieve the successful implementation of our new framework, we have examined what role the states should play.[597] The policy framework we adopt in this Order is based on carefully targeted impairment determinations. Where appropriate, based on the record before us, we adopt uniform rules that specify the network elements that must be unbundled by incumbent LECs in all markets and the network elements that must not be unbundled, in any market, pursuant to federal law. In doing so, we exercise our authority pursuant to sections 201(b) and 251(d) of the Act. As we explain in this Order, we find that setting a national policy for unbundling some network elements is necessary to send proper investment signals to market participants and to provide certainty to requesting carriers, including small entities. We find that states do not have plenary authority under federal law to create, modify or eliminate unbundling obligations.

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[597] As the Commission stated in 1996, if, upon review, decision-making responsibilities have been inefficiently or inappropriately allocated between the Commission and the states, the Commission will reallocate them. *Local Competition Order*, 11 FCC Rcd at 15520, para. 41. Many state commissions urge the Commission to convene a Federal/State Joint Conference on unbundling requirements pursuant to section 410(b) of the 1996 Act before promulgating new rules. NARUC Comments at 4-5; Michigan Commission Comments at 5-6; Illinois Commission Comments at 3; *see also* CompTel Nov. 26, 2001 Joint Conference Petition. Others oppose the Federal/State Joint Conference proposal as superfluous and creating delay in resolution of the issues. ALTS *et al.* Comments at 132-33; Pennsylvania Commission Comments at 3-4 n.7; BellSouth Comments at 112. In light of our responsibilities under the Act to implement the unbundling obligations as well as the D.C. Circuit Court's decision in *USTA*, we find it imperative to move forward to adopt new rules without reference to a Joint Conference and we therefore deny that portion of the CompTel Petition.

188. The record before us and the D.C. Circuit's emphasis in *USTA* on granularity in making unbundling determinations both lead us to conclude that asking states to take on some fact finding responsibilities would be the most reasonable way to implement the statutory goals for certain network elements.[598] We find that giving the state this role is most appropriate where, in our judgment, the record before us does not contain sufficiently granular information and the states are better positioned than we are to gather and assess the necessary information. A more granular analysis will also benefit small businesses by considering the differing levels of competition in rural and urban markets and the differing needs and resources of carriers serving mass market and small to medium business customers.[599] We conclude that we have the authority to delegate to the states some of our authority pursuant to section 251(d)(2). Express statutory authority is not required for an agency validly to delegate functions to

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[598] *See infra* Part VI. A number of state commissions have urged the Commission to take advantage of their knowledge of local market conditions. *See* Michigan Commission Comments at 4-6; Florida Commission Reply at 2-3; Georgia Commission Comments at 3-4; Massachusetts Department Comments at 5-8. Competitive LECs have made similar proposals. *See* AT&T Comments at 246-50; Letter from Heather B. Gold, Principle, KDW Group (for Broadview, Talk America, and Eschelon), to Marlene H. Dortch, Secretary, FCC, CC Docket 01-338, Attach. 1 (filed Dec. 31, 2002) (KDW Dec. 31, 2002 *Ex Parte* Letter). Some competitive carriers petitioned the Commission to adopt procedures that provide state public utility commissions with authority to determine which network elements should be unbundled in their states. *See* Promoting Active Competition Everywhere (PACE) Coalition Petition, CC Docket Nos. 01-338, 96-98, 98-147 (filed Feb. 6, 2002) (PACE Feb. 6, 2002 Petition). In light of our decision in this Order to delegate some of our unbundling authority to the states in appropriate circumstances, we dismiss the PACE petition as moot.

[599] *See* Eschelon Comments at 6, 8.

another entity or sovereign.[600] Moreover, neither section 251(d)(2) nor any other provision of the 1996 Act prohibits delegation of the Commission's authority to "determine what network elements must be made available."[601] Incumbent LECs argue that the Commission may not "punt" unbundling decisions to the states.[602] They argue that, in those instances where impairment analysis requires a more granular approach, the Commission should establish "objective, carefully defined criteria for determining where unbundling is (and is not) appropriate."[603] We find that, provided our delegation to the states is consistent with applicable federal law and is undertaken in a way that is reasonably designed to ensure that the substantive function at issue will be performed consistently with the statute's substantive standards, we are in no way "punting" decisions to the states.[604] Rather, we are reasonably implementing the statute, particularly given that states may be in the best position to judge whether the Act's extraordinary unbundling remedies should be applied.

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[600] *See, e.g., Fleming v. Mohawk Wrecking & Lumber Co.*, 331 U.S. 111, 121-22 (1947); *Tabor v. Joint Board For Enrollment of Actuaries*, 566 F.2d 705, 708 n.5 (D.C. Cir. 1977); *Assiniboine and Sioux Tribes v. Board of Oil and Gas Conservation*, 792 F.2d 782, 795-96 (9th Cir. 1986).

[601] *See* 47 U.S.C. § 251(d)(2).

[602] Letter from Herschel L. Abbott, Jr., Vice President—Government Affairs, BellSouth *et al.*, to Michael K. Powell, Chairman, FCC at 2, *in* Letter from Cronan O'Connell, Vice President—Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Nov. 19, 2002) (RBOC Joint Nov. 19, 2002 *Ex Parte* Letter).

[603] RBOC Joint Nov. 19, 2002 *Ex Parte* Letter at 4.

[604] *See Vierra v. Rubin*, 915 F.2d 1372, 1378 (9th Cir. 1990) (a state's authority to define a federal statutory term may not exceed the statutory authority given the federal agency by Congress in the first place); *see also Assiniboine and Sioux Tribe v. Board of Oil and Gas Conservation*, 792 F.2d at 795-96; *Nat'l. Park and Conservation Ass'n v. Stanton*, 54 F. Supp. 2d 7, 19 (D.D.C. 1999).

189. We find that a delegation to the states with standards from the Commission will best ensure that our unbundling decisions are implemented consistently with the Act's purposes. We find this approach is consistent with the Supreme Court's view that the state commissions' participation in the "new federal regime" should be "guided by federal-agency regulations."[605] We limit the states' delegated authority to the specific areas and network elements identified in this Order. To ensure that the states implement their delegated authority in the same carefully targeted manner as our federal determinations, we set forth in this Order federal guidelines to be applied by the states in the execution of their authority pursuant to federal law.

190. We delegate to the states our authority under section 251(d)(2) to undertake analyses set forth in this Order which will affect incumbent LECs' unbundling obligations for certain elements in particular areas in this Order. There can be no doubt that state commissions possess the ability and the competence to undertake such analyses for specific network elements successfully. Moreover, for the elements we have specified, state commissions are well situated to conduct the granular analysis required. If a state commission fails to perform the granular inquiry we delegate to them, any aggrieved party may petition this Commission to step into the state's role. Any party seeking Commission review of a state commission's failure to act shall file a petition with this Commission that explains with specificity the bases for the petition and information that supports the claim that the state has failed to act. The Commission will issue a public notice seeking comment on the petition and rule on the petition within ninety days from this public notice. If the Commission agrees that the state has failed to act, it will assume responsibility for the proceeding and make any findings in

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[605] *Iowa Utils. Bd.*, 525 U.S. at 378 n.6. We do not agree that the Court meant to suggest that states had no role to play, as some have argued. *See* SBC Comments at 42.

accordance with the rules set forth herein. These findings will be made nine months from the time the Commission has assumed responsibility for the proceeding.[606]

b. State Authority

191. Section 252(e)(3) preserves the states' authority to establish or enforce requirements of state law in their review of interconnection agreements. Section 251(d)(3) of the 1996 Act preserves the states' authority to establish unbundling requirements pursuant to state law to the extent that the exercise of state authority does not conflict with the Act and its purposes or our implementing regulations.[607] Many states have exercised their authority under state law to add network elements to the national list.[608]

192. We do not agree with incumbent LECs that argue that the states are preempted from regulating in this area as a matter of law.[609] If Congress intended to preempt the field, Congress would not have included section 251(d)(3) in the 1996 Act. We likewise do not agree with those that argue that the states may impose any unbundling framework they deem proper under state law, without regard to the federal regime.[610] These commenters overlook the specific restraints

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[606] In the case of switches used to serve customers in the enterprise market at the DS1 capacity and above, however, the Commission will issue its findings within 90 days from the time it has assumed responsibility for the proceeding. *See infra* Part VI.D.5.

[607] *See* 47 U.S.C. § 251(d)(3).

[608] *See, e.g.*, NARUC Comments at 8-9.

[609] *See, e.g.*, SBC Comments at 40-42; Verizon Comments at 65-66; RBOC Joint Nov. 19, 2002 *Ex Parte* Letter. *Cf. Iowa Utils. Bd.*, 525 U.S. 366 (rejecting incumbent LECs' assertions that the states, not the Commission, have authority to adopt rules to implement the local competition provisions of the 1996 Act).

[610] *See* NARUC Comments at 10 (urging the Commission "to defer to State determinations of whether unbundling requirements in any State should collapse to the existing or new federal minimums."); *see also* Z-Tel

on state action taken pursuant to state law embodied in section 251(d)(3), and the general restraints on state actions found in sections 261(b) and (c) of the Act.[611] Their arguments similarly ignore long-standing federal preemption principles that establish a federal agency's authority to preclude state action if the agency, in adopting its federal policy, determines that state actions would thwart that

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Comments at 89-90; AT&T Reply at 374-75; *see also* Letter from Edward A. Yorkgitis, Jr., Counsel for Talk America, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Nov. 15, 2002) (Talk America Nov. 15, 2002 Role of States *Ex Parte* Letter); AT&T Nov. 13, 2002 *Ex Parte* Letter at 4 (asserting that "section 251(d)(3) expressly bars the Commission from adopting regulations that preclude enforcement of State unbundling requirements that are in *addition* to those that the Commission adopts.").

[611] Z-Tel and Talk America argue that the Eighth Circuit has already found that section 251(d)(3) "constrains the FCC's authority" to preempt state access and interconnection obligations. Talk America Nov. 15, 2002 Role of States *Ex Parte* Letter at 2; Z-Tel Comments at 87-88, citing *Iowa Utils. Bd. v. FCC*, 120 F.3d. at 806-07. Z-Tel maintains that, in light of the Eighth Circuit's holding, the Commission should not attempt, in advance, to limit the state commissions' authority to create unbundling requirements but should conduct a separate adjudicative proceeding if an incumbent LEC seeks to preempt state unbundling requirements. Z-Tel Comments at 89. The Eighth Circuit found that the scope of federal rulemaking authority under section 251 of the 1996 Act was limited to six specific areas and interpreted section 251(d)(3) as a further constraint on Commission authority. *Iowa Utils. Bd. v. FCC*, 120 F.3d at 806. The Supreme Court reversed with respect to the scope of federal rulemaking authority in *Iowa Utilities Board*. The Commission did not appeal the Eighth Circuit's holding with respect to section 251(d)(3). That portion of the Eighth Circuit's opinion reinforces the language of the section, *i.e.*, that state interconnection and access regulations must "substantially prevent" the implementation of the federal regime to be precluded and that "merely an inconsistency" between a state regulation and a Commission regulation was not sufficient for Commission preemption under section 251(d)(3). *Id.* We believe our decision properly balances the broad authority granted to the Commission by the 1996 Act with the role preserved for the states in section 251(d)(3) and is fully consistent with the Eighth Circuit's interpretation of that provision.

policy.[612] Under these principles, states would be precluded from enacting or maintaining a regulation or law pursuant to state authority that thwarts or frustrates the federal regime adopted in this Order.[613]

193. Based on the plain language of the statute, we conclude that the state authority preserved by section 251(d)(3) is limited to state unbundling actions that are consistent with the requirements of section 251 *and* do not "substantially prevent" the implementation of the federal regulatory regime.[614] We disagree with those commenters that

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[612] *See, e.g., Geier v. American Honda Motor Co.*, 529 U.S. 861, 873 (2000) (where state law frustrates the purposes and objectives of Congress, conflicting state law is "nullified" by the Supremacy Clause); *City of New York v. FCC*, 486 U.S. 57, 64 (1988); *see also Iowa Utils. Bd.*, 525 U.S. at 381 n.7 (the Court opined that, after the 1996 Act, the limitation on the Commission taking intrastate action embodied in section 152(b) of the Communications Act "may have less practical effect . . . because Congress, by extending the Communications Act into local competition, has removed a significant area from States' exclusive control.").

[613] *Fidelity Federal Savings & Loan Assoc. v. de la Cuesta*, 458 U.S. 141, 154 (1982) ("A pre-emptive regulation's force does not depend on express congressional authorization to displace state law"); *City of New York v. FCC*, 486 U.S. 57, 64 (1988) ("The statutorily authorized regulations of an agency will pre-empt any state or local law that conflicts with such regulations or frustrates the purposes thereof."). Even where Congress has preserved some role for the states the Supreme Court has found that "state law is nullified to the extent that it actually conflicts with federal law." *Fidelity Federal Savings & Loan Assoc. v. de la Cuesta*, 458 U.S. at 154. The Court stated that such a "conflict" arises ". . . when state law 'stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress,' *Hines v. Davidowitz*, 312 U.S. 52, 67, 61 S.Ct. 399, 404, 85 L.Ed. 581 (1941)." *Id.*

[614] We find that Congress' reference to the "implementation of the requirements of this section" in section 251(d)(3)(C) means the Commission's section 251 implementing regulations. AT&T's argument that the validity of state unbundling regulations must be measured solely against the Act's purposes fails to recognize that the Commission is

maintain that, because we have permitted states to add UNEs to our national list in the past, we cannot limit their ability to continue to do so.[615] Their argument ignores the clear directives Congress provided in the 1996 Act. Section 251(d)(3) preserves states' authority to impose unbundling obligations but only if their action is consistent with the Act and does not substantially prevent the implementation of our federal regime. Their argument also ignores the fact that prior Commission actions clearly had preemptive effect; as noted above, in the *UNE Remand Order*, the Commission prohibited the states from removing UNEs from the federally mandated list.

194. We also find that state action, whether taken in the course of a rulemaking or during the review of an interconnection agreement, is limited by the restraints imposed by subsections 251(d)(3)(B) and (C). We are not persuaded by AT&T's argument that a state commission may impose additional unbundling obligations in the context of its review of an interconnection agreement without regard to the federal scheme.[616] Section 252(e)(3) provides that nothing *in section 252* prohibits a state commission from imposing additional requirements of state law in its review of an

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charged with implementing the Act and its purposes are fully consistent with the Act's purposes. *See* AT&T Nov. 13, 2002 *Ex Parte* Letter at 6; Letter from Mark Rosenblum, Vice President—Law, AT&T, to Michael K. Powell, Chairman, FCC, *et al.*, CC Docket No. 01-338 at 7, *in* Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Dec. 18, 2002) (AT&T Dec. 18, 2002 Rosenblum *Ex Parte* Letter).

[615] *See* California Commission Comments at 23; New York Department Comments at 8-9; NARUC Comments at 6; Florida Commission Comments at 5-6; AT&T Reply at 373-75; Letter from Access Integrated Networks *et al.*, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2-3 (filed Oct. 24, 2002) (Access Integrated Networks Oct. 24, 2002 *Ex Parte* Letter).

[616] *See* AT&T Dec. 18, 2002 Rosenblum *Ex Parte* Letter at 9.

interconnection agreement.[617] We find nothing in the language of section 251(d)(3) to limit its application to state rulemaking actions. Therefore, we find that the most reasonable interpretation of Congress' intent in enacting sections 251 and 252 to be that state action, whether taken in the course of a rulemaking or during the review of an interconnection agreement, must be consistent with section 251 and must not "substantially prevent" its implementation.

195. Parties that believe that a particular state unbundling obligation is inconsistent with the limits of section 251(d)(3)(B) and (C) may seek a declaratory ruling from this Commission. If a decision pursuant to state law were to require the unbundling of a network element for which the Commission has either found no impairment—and thus has found that unbundling that element would conflict with the limits in section 251(d)(2)—or otherwise declined to require unbundling on a national basis, we believe it unlikely that such decision would fail to conflict with and "substantially prevent" implementation of the federal regime, in violation of section 251(d)(3)(C). Similarly, we recognize that in at least some instances existing state requirements will not be consistent with our new framework and may frustrate its implementation. It will be necessary in those instances for the subject states to amend their rules and to alter their decisions to conform to our rules.

196. We find that our federal framework, which provides for uniform national rules for some network elements and a more granular approach for others, offers the certainty and stability necessary to enable parties to make investment decisions. This approach is required under *USTA*.[618] Commenters have argued that nothing could create more instability, and be more destructive of investment incentives

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[617] *See* 47 U.S.C. § 252(e)(3).

[618] *See USTA*, 290 F.3d at 427 (finding that Commission's concept of impairment failed to take account of relevant cost disparities).

for both incumbent LECs and competitive LECs, than the establishment of multiple, separate state decisions as to which UNEs have to be offered and under what conditions.[619] In this Order we have balanced the need for a more granular analysis with the need for certainty through a federal unbundling regime. In light of policy reasons and the fact that the D.C. Circuit has found fault with our uniform national rules, we find that the availability of certain network elements may vary between geographic regions. However, the basis on which those more granular determinations will be made is straightforward and predictable. Additionally, we find that the limitations embodied in section 251(d)(3)(B) and (C) will prevent states from taking actions under state law that conflict with our framework and create disincentives for investment.

VI. UNBUNDLING REQUIREMENTS FOR INDIVIDUAL NETWORK ELEMENTS

A. Loops

1. Summary

197. Consistent with our statutory mandate and relevant judicial precedent, we focus on specific market and customer characteristics as informed by the various loop types and capacities that typically serve these markets and customers to undertake the granular inquiry necessary to determine where loop impairment exists.[620] In distinguishing among the

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[619] Verizon Reply at 51. Verizon also urges the Commission to expeditiously halt existing state efforts to craft expanded unbundling requirements. *Id.* at 53; *see also* SBC Reply at 71-83.

[620] Specifically, the local loop network element is a transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and the loop demarcation point at an end-user customer premises. This network element also includes all features, functions and capabilities of such transmission facility, including the NID. It also includes all electronics, optronics, and intermediate devices (including repeaters and load coils) used to establish the transmission path to the end-user customer premises as well as any inside wire owned or controlled by

various types of loop facilities, *i.e.*, DS0 (voice-grade/POTS), DS1, DS3, OCn and dark fiber, we recognize that these facilities, as a practical matter, typically serve distinct classes of customers,[621] resulting in different economic considerations for competitive carriers seeking to self-deploy.[622] Through this approach we are able to more precisely calibrate our rules to ensure that competitive LECs only gain access to unbundled loops where they are impaired under the standard we adopt above, *i.e.*, where they cannot economically self-provision loops and competitive alternatives do not exist.[623] To that end, we conduct separate loop impairment analyses based on loop types and capacity levels, which also consider two relevant customer classes—the mass market and the enterprise market.[624]

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the incumbent LEC that is part of that transmission path. *See infra* note 638.

[621] *See, e.g.*, SBC Comments at 96-98; NewSouth Reply at 16.

[622] As explained in Part VI.A.4.a. below, we make a further distinction in our unbundling analysis for mass market loops based upon the type of loop facility (*e.g.*, copper or fiber).

[623] Our loop unbundling analyses takes into account the relevant customer market typically served by the loop capacity involved. However, we recognize that although each loop type and capacity level may be used predominantly to provide service to a particular customer group, that same loop also may be used to provide service across a range of customer categories. For that reason, though our loop unbundling analysis focuses upon the customer classes most likely to be served by a specific type of loop, the unbundling rules we adopt apply with equal force to every customer served by that loop type. *See infra* paras. 209-10.

[624] As described in Part V.B.2.a. above, the mass market consists primarily of residential and similar, very small, business users of analog POTS. The enterprise market is a business customer market of typically medium to large businesses with a high demand for a variety of sophisticated telecommunications services. *See supra* Part V.B.2.a. The record reflects that high-capacity loops, DS1 to OCn, are generally provisioned to enterprise customers, while voice-grade analog loops, DS0 loops, and loops that deploy xDSL services, are used to serve customers typically associated with the mass market. We note, however, that while

198. With respect to our mass market analysis, we make national impairment determinations for loops based on general economic and operational factors that do not vary significantly by geographic region.[625] As we explain more fully below, we find that the technical characteristics of the loop facilities generally deployed for use by mass market customers counsel for adopting rules that take into account the various technologies now used in loops. In crafting our unbundling requirements, we consider other factors, most notably our mandate under section 706 of the Act to promote the rapid deployment of advanced services throughout the nation. Additionally, we reach our findings after full recognition and consideration of intermodal platforms, notably cable and CMRS.

199. Given the steep economic barriers associated with alternative loop deployment that are compounded by various identified operational issues, we require that loops consisting of either all copper or hybrid copper/fiber facilities must be

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the enterprise market is comprised of business customers of varying size and capacity requirements, these customers reside, most often, in multiunit premises which are owned or controlled by another entity. Competitive carriers serving multiunit premises face deployment barriers that are not present when a competitive carrier seeks to deploy service to a customer located in a premises that such customer owns or controls. *See infra* Part VI.B.2. (addressing in detail barriers associated with accessing customers in multiunit premises). When customers typically associated with the mass market reside in multiunit premises, carriers seeking to self-deploy their own facilities to serve these customers face the same barriers as when serving multiunit premise-based enterprise customers. Because we find that the barriers faced by requesting carriers in accessing customers in multiunit premises are not unique to enterprise market customers residing in such premises but extend to all classes of customers residing therein, including residential or other mass market tenants, the conclusions we reach for high-capacity loops in the enterprise market apply equally to mass market customers in multiunit premises. This in no way affects or changes the conclusions we reach with respect to DS0 and xDSL capable loops in our mass market analysis.

625 *See, e.g.*, AT&T Reply at 146, 165.

provided on an unbundled basis so that requesting carriers may provide narrowband services over them.[626] For these reasons, we also direct incumbent LECs to unbundle stand-alone copper loops and subloops for the provision of broadband service. However, subject to a transition plan discussed below, we do not reinstate the Commission's vacated line sharing rules because we determine that continued unbundled access to stand-alone copper loops and subloops enables a requesting carrier to offer and recover its costs from all of the services that the loop supports, including broadband service.

200. In addition, we find that different policy considerations, as well as different technical considerations, are associated with copper loops, hybrid copper/fiber loops, and FTTH loops. For example, we decline to require incumbent LECs to provide unbundled access to their hybrid loops for the provision of broadband services.[627] Similarly, we decline to unbundle loops that consist of FTTH facilities for broadband services. As explained more fully below, this unbundling approach—*i.e.*, greater unbundling for legacy copper facilities and more limited unbundling for next-generation network facilities—appropriately balances our goals of promoting facilities-based investment and innovation against our goal of stimulating competition in the market for local telecommunications services.

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[626] As explained below, in overbuild situations where the incumbent LEC elects to retire existing copper loops for FTTH loops, we also require incumbent LECs to make available unbundled access to a 64 kbps transmission path over that FTTH loop so that a competitor may provide narrowband service to that end-user customer.

[627] Incumbent LECs must continue to provide unbundled access to the TDM features, functions, and capabilities of their hybrid loops. This will allow competitive LECs to continue providing both traditional narrowband services (*e.g.*, voice, fax, dial-up Internet access) and high-capacity services like DS1 and DS3 circuits.

201. With respect to our enterprise market analysis, we make national impairment determinations based on loop characteristics that do not vary significantly from area to area. Our conclusions with respect to loop deployment do vary, however, according to the loop type, *i.e.*, dark fiber[628] or "lit" fiber,[629] and the capacity level of the particular loop. We find that different economic characteristics impact a competitive LEC's ability to self-deploy or utilize wholesale alternatives based on the capacity level of the loop facility demanded by its customer.[630]

202. With regard to the highest capacity loop facilities, *i.e.*, OCn loops,[631] we conclude that no impairment exists on a

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[628] Dark fiber is optical fiber through which no light is transmitted and no signal is carried. It is unactivated deployed fiber that is left dark, *i.e.*, with no necessary equipment, *i.e.*, "opto-electronics" or "optronics" attached to light the fiber to carry a signal to serve customers. *See* NEWTON'S TELECOM DICTIONARY 201 (18th ed. 2002) (definition of Dark Fiber); *see also UNE Remand Order*, 15 FCC Rcd at 3771, para. 162 n.292. Once the optronics are attached to the fiber to make signal transmission possible the dark fiber becomes "lit." *See* NEWTON'S TELECOM DICTIONARY 538-39 (18th ed. 2002) (definition of Opto-Electronics and Optronics).

[629] *Id.*; *see also* NEWTON'S TELECOM DICTIONARY 433 (18th ed. 2002) (definition of Lit Fiber).

[630] We also know that alternative transmission technologies such as fixed wireless, satellite and unlicensed wireless may exist as potential enterprise market loop alternatives in limited circumstances and, therefore, consider these alternative transmission capabilities in our impairment analysis where appropriate. *See, e.g.*, BellSouth Comments at 42-44; SBC Reply at 91; Verizon Comments at 118-19.

[631] OCn is an optical interface designed to work with a Synchronous Optical Network (SONET). *See* NEWTON'S TELECOM DICTIONARY 528 (18th ed. 2002) (definition of OCn). SONET is an optical interface standard for translating electronic communications signals into photonic signals for transmission across fiber optic facilities. Ideally, SONET transmission systems are laid out in a ring formation to provide redundancy. *See* NEWTON'S TELECOM DICTIONARY 684-85 (18th ed. 2002) (definition of SONET). OCn transmission facilities are deployed as

nationwide basis. At the OCn level, requesting carriers have the ability to economically self-provision their own loops or are able to obtain unbundled dark fiber and light it at the OCn level. With respect to dark fiber loops,[632] DS3 loops,[633] and DS1 loops,[634] we conclude that requesting carriers are

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SONET channels having a bandwidth of typically 155.52 Mbps (OC3 or the equivalent capacity of 3 DS3s) and higher, *e.g.*, OC12 (622.08 Mbps); OC48 (2.488 Gbps) etc. *See* NEWTON'S TELECOM DICTIONARY 527 (18th ed. 2002) (definitions of OC3, OC12, and OC48).

[632] In the *UNE Remand Order*, the Commission determined that the loop facility includes dark fiber, stating that both copper and fiber alike represent unused loop capacity therefore dark fiber and extra copper both fall within the loop network element's "facilities, functions, and capabilities." *See UNE Remand Order*, 15 FCC Rcd at 3776, para. 174. The Commission went on to state that there is "no reason to distinguish dark fiber from our general unbundling analysis for loops." *UNE Remand Order*, 15 FCC Rcd at 3785, para. 196. The record contains no basis for departing from this determination.

[633] A DS3 loop is a digital local loop having a total digital signal speed of 44.736 Mbps provided over various transmission media including but not limited to fiber optics, coaxial cable, or radio. DS3 loops can be channelized into 28 DS1 channels. *See infra* note 634. They can also be unchannelized. *See* NEWTON'S TELECOM DICTIONARY 242 (18th ed. 2002) (defining DS3).

[634] A DS1 is a 1.544 Mbps first-level signal in the digital transmission hierarchy. In the time division multiplexing hierarchy of the telephone network, DS1 is the initial level of multiplexing. Traditionally, 24 64 kbps DS0 channels have been multiplexed up to the 1.544 Mbps DS1 rate, with each DS0 channel carrying the digital representation of an analog voice channel. *See* TELCORDIA, INC., NOTES ON THE NETWORK, TELCORDIA TECHNOLOGIES SPECIAL REPORT, SR-2275, Issue 4, Oct. 2000, Glossary at 46 (TELCORDIA NOTES ON THE NETWORK). DS1 loops are provided over various transmission media and combinations of transmission media, including but not limited to two-wire and four-wire copper, fiber optics, or radio. DS1 loops may be channelized typically into up to 24 DS0 channels of 56/64 kbps each, or unchannelized, *i.e.*, providing a continuous bit stream for data (such as frame relay, ATM, or Internet access) or other customer applications. We note that throughout the record in this proceeding parties use the terms DS1 and T1 interchangeably when describing a symmetric digital transmission link

impaired on a location-by-location basis without unbundled access to incumbent LEC loops nationwide. We find, however, that some competitive carriers have been able to deploy certain high-capacity loops to particular customer locations and that some wholesale alternatives also exist at particular customer locations. Because the record does not provide the specific information necessary to identify the precise customer locations where this deployment has occurred,[635] we delegate to state commissions the authority to make findings of fact within the scope of the deployment triggers we define, to identify on a more granular scale where

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having a total 1.544 Mbps digital signal speed. Carriers frequently use a form of DSL service, *i.e.*, High-bit rate DSL (HDSL), both two-wire and four-wire HDSL, as the means for delivering T1 services to customers. We will use DS1 for consistency but note that a DS1 loop and a T1 are equivalent in speed and capacity, both representing the North American standard for a symmetric digital transmission link of 1.544 Mbps. *See* NEWTON'S TELECOM DICTIONARY 242 (18th ed. 2002) (definition of DS1); *id.* at 718 (definition of T1); *see also* ENGINEERING AND OPERATIONS IN THE BELL SYSTEM 198-201 (R.F. Ray Technical ed., 2d ed. 1983) . (channelization process for transmission of telecommunications), 369-73 (technical characteristics of DS1 loops), 386-93 (describing T-carrier hierarchy and necessary equipment); TELCORDIA, INC., NOTES ON THE NETWORK, SR-2275, section 7.7 (Dec. 2000) (describing digital data services provided over local loops) at 7-23 (overview of DS hierarchy).

[635] We do, however, determine that the record contains sufficient information to enable us to identify appropriate triggers and related criteria that will, after a more particularized analysis, identify the specific customer locations where certain types of high-capacity loop impairment does not exist. To that end, we develop a mechanism for a further level of granular inquiry by state commissions on a customer location-specific basis where our defined triggers exist. We both delegate authority to and direct state commissions to undertake more granular analyses for dark fiber loops, DS3 loops, and DS1 loops at specific customer locations based upon our defined triggers and related criteria for each of these three types of loops, as described below. These more granular impairment analyses may result in non-impairment determinations for one or more of these three types of high-capacity loop facilities at specified customer locations.

carriers are not impaired without access to incumbent LEC unbundled high-capacity loops.

2. Background

203. Loops in their simplest form are the transmission facilities between a central office and the customer's premises, *i.e.*, "the last mile" of a carrier's network that enables the end-user customer to receive, for example, a telephone call or a facsimile, as well as to originate similar communications.[636] Loops were included on the initial list of UNEs in the *Local Competition Order*, and even the incumbent LECs agreed that the loop network element must be unbundled pursuant to sections 251(c)(3) and 251(d)(2) of the Act.[637] In the *UNE Remand Order*, the Commission broadened the definition of the loop to include all features, functions, and capabilities of these transmission facilities, including high-capacity loops, dark fiber and all attached electronics (except those used for providing advanced services).[638] The Commission also concluded that obtaining all types of loops from alternative, non-incumbent LEC sources, *i.e.*, third party or self-provisioning, would impede

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[636] *Local Competition Order*, 11 FCC Rcd at 15691, para. 380.

[637] *Id.* at 15689-90, para. 377; *see also UNE Remand Order*, 15 FCC Rcd at 3771, para. 162 n.292.

[638] *UNE Remand Order*, 15 FCC Rcd at 3772, paras. 166-67 nn.300 & 301; *see also* 47 C.F.R. § 51.319(a)(1), which defined loops as:

> Local loop. The local loop network element is defined as a transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and the loop demarcation point at an end-user customer premises, including inside wire owned by the incumbent LEC. The local loop network element includes all features, functions, and capabilities of such transmission facility. Those features, functions, and capabilities include, but are not limited to, dark fiber, attached electronics (except those electronics used for the provision of advanced services, such as Digital Subscriber Line Access Multiplexers), and line conditioning. The local loop includes, but is not limited to, DS1, DS3, fiber, and other high-capacity loops.

competitive entry by materially raising entry costs; delaying entry; and limiting the scope and timeliness of competitor's offerings.[639] Accordingly, the Commission applied a one-size-fits-all approach to loops, and ordered unbundling of all incumbent LEC loops, from DS0 to OCn and dark fiber, throughout the nation.[640]

204. In the *Triennial Review NPRM*, as part of its overall inquiry about the viability of adopting more granular unbundling rules, the Commission asked whether its impairment analysis should make "service, geographic, capacity or other distinctions to the unbundled loop."[641] In addition, the Commission asked whether there were meaningful distinctions between those loops capable of providing basic services versus those capable of advanced or broadband services.[642] Finally, for high-capacity loops (DS1 and above), the Commission sought comment on whether there was a particular capacity level at which new entrants could economically self-deploy.[643]

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639 *UNE Remand Order*, 15 FCC Rcd at 3772, para. 165.

640 In the *UNE Remand Order*, the Commission did not engage in a capacity-based analysis beyond confirming that high-capacity loops were included in the definition of the loop. The Commission found that because "the wire facility used for transmission of the traffic is indistinguishable from any other copper wire" there was no reason to modify the definition of loops to describe various categories of capacity. *UNE Remand Order*, 15 FCC Rcd at 3777, para. 176. The Commission, however, did separately consider dark fiber local loops, finding the characteristics to be similar to dark fiber transport ("Because fiber is currently a more significant component of interoffice transport than the loop network element, we discuss aspects of dark fiber common to both elements when we discuss interoffice transport below."). *UNE Remand Order*, 15 FCC Rcd at 3785-86, para. 198.

641 *Triennial Review NPRM*, 16 FCC Rcd at 22804, para. 51.

642 *Id.* at 22804-05, para. 51.

643 *Id.*

3. General Economic Characteristics of Loop Deployment

205. Constructing loop plant is both costly and time consuming, regardless of the type of loop being deployed.[644] Notably, both the Supreme Court and the D.C. Circuit recognized that incumbent LECs may be required to unbundle loop facilities because they are "very expensive to duplicate."[645] Because the distribution portion of the loop serves a specific location,[646] and installing and rewiring that loop is very expensive, most of the costs of constructing loops are sunk costs. Unless that loop is subsequently purchased by another provider wishing to serve that same location, a carrier's ability to recover the cost of that loop is generally constrained except in limited circumstances at certain capacity levels. While fixed costs for constructing loops are quite high, economies of scale in deployment can accrue in constructing loops to locations that are geographically close to a carrier's transport network, assuming other barriers do not preclude construction.[647] This is especially true in urban areas where the concentration of potential customer locations is very dense.[648] Conversely, because of long loop lengths

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[644] *See, e.g.*, ALTS *et al.* Comments at 56-57 (stating that fiber deployment costs $100,000-$300,000 per mile underground, $50,000 per mile on poles, and $10,000 to $60,000 through pipelines and adding a building averages $250,000—and that if the building is more than a mile from the competitive LEC's existing networks, it can cost more that $1,000,000 per mile to construct fiber loops in urban areas); WorldCom Comments at 74-75 (stating that it costs approximately $250,000 for a "building add" and can take six to nine months for a competitive LEC to deploy a new DS1 loop).

[645] *USTA*, 290 F.3d at 426 (citing *Verizon*, 535 U.S. 467 at n.27).

[646] This contrasts with the feeder portion of the loop which may serve multiple locations.

[647] *See, e.g.*, AT&T Comments at 134.

[648] *See, e.g.*, Letter from Douglas A. Dawson, CCG Consulting, (on behalf of 20 "network-based" competitive LECs) to Marlene H. Dortch,

required to reach more distant, geographically dispersed customers, loops are more expensive to build in rural areas, raising the average cost per loop for equipment, installation, and maintenance.[649] In addition to the cost-related barriers discussed above, competitive carriers deploying loops also face difficulties in acquiring municipal and private rights-of-ways as well as gaining building access from owners of multiunit premises.[650] These additional factors can further affect competitive carriers' ability to sign up customers that need predictability in their business decisions.[651]

206. For fiber-based loops, the cost of construction does not vary significantly by loop capacity, *i.e.*, the per-mile cost of building a DS1 loop does not differ significantly from the cost to construct an OCn loop. The most significant portion

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Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 6-7 (filed July 17, 2002) (submitting survey-based "State Of CLEC Competition") (CCG July 17, 2002 CLEC Survey *Ex Parte* Letter) (demonstrating that for the six major metropolitan areas surveyed the concentration of competitive LEC loop deployment is in the downtown area); Allegiance Comments at 23.

[649] In addition, we note that scale economies may particularly affect small businesses.

[650] *See, e.g.*, AT&T Reply at 174-79 (discussing other barriers linked to the incumbent LECs' historical monopoly that preclude competitive loop deployment independent of cost factors); *see also* NuVox Comments at 74; KMC Duke Aff. at paras. 7-8 (citing proprietary information), Affidavit of Joseph Polito, SNiP LiNK, Inc. (SNiP LiNK Polito Aff.) at paras. 4-7; Sprint Comments at 22; Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2-3 (filed Oct. 25, 2002) (discussing building access barriers) (WorldCom Oct. 25, 2002 Building Access *Ex Parte* Letter); ALTS *et al.* Comments at 56.

[651] *See, e.g.*, AT&T Reply at 175 (describing how it keeps statistics on "breakage," *i.e.*, instances where it initially won a customer but subsequently lost it due to delay in gaining building access to provision the customer); *see also* Sprint Comments at 23 ("Customers will not wait the months required by CLECs to acquire permits, cut streets, install additional equipment, engineer, construct, and test new facilities.").

of the costs incurred result from deploying the physical fiber infrastructure in the ground, rather than from lighting the fiber optical cable.[652] The ability to recover these construction costs for different loop capacities does, however, vary based on the relevant capacity level of the loop to be provided. Accordingly, a key consideration in our impairment analysis is the loop capacity level at which a competitive entrant can recover its construction costs. Similarly, the ability to overcome other operational barriers to deployment varies based on the capacity of the loop. The record confirms that loop capacity level directly affects the potential revenue stream that can reasonably be obtained to offset construction costs in an economically feasible timeframe.[653] Thus, in addition to the barriers a new entrant faces in deploying loops, we consider the revenue potential associated with particular loop capacity,[654] as well as the ability to mitigate

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[652] *See, e.g.*, AT&T Comments at 130; AT&T Reply at 148 (arguing that the cost of loop deployment primarily lies in the structures and rights-of-way, not in the copper or fiber conductor).

[653] *See, e.g.*, WorldCom Comments at 76; Letter from Timothy J. Regan, Senior Vice President—Government Affairs, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 32 (filed Nov. 26, 2002) (Corning Nov. 26, 2002 *Ex Parte* Letter); Corning Comments, App. A at 10 (Cambridge Strategic Management Group, *Assessing the Impact of Regulation on Deployment of Fiber to the Home* (2002) (*CSMG Study*)).

[654] In considering potential revenue streams from the various types of loops, it is necessary to factor in the ability to enter into and enforce long-term contracts with customers. We have some evidence that certain states have adopted or are considering regulations that limit the ability of carriers to bind a customer to a long-term local service contract (*i.e.*, longer than one year) and associated termination charges. *See, e.g.*, *Missouri Public Service Commission, Southwestern Bell Telephone Company's Proposed Revisions to PSC Mo. No. 26, Long Distance Message Telecommunications Service Tariff*, Report and Order, Case Nos. TT-2002-227 *et al.* (June 27, 2002) (local service terms in excess of one year will not be permitted); California Public Utilities Commission, *Rules Governing Telecommunications Consumer Protection*, Interim Decision,

construction delays that affect provisioning intervals as keys to determining the degree to which an entrant is impaired in deploying a particular loop capacity.

207. Unlike transport facilities, loops generally do not aggregate multiple customers' traffic. As a result, loop impairment is more closely related to the demands of the individual customer served by such loop. In that regard, customer class distinctions are useful in understanding competitive carriers' decisions and economic abilities regarding deployment of loops typically used to serve customers generally associated with that particular class.

208. Consistent with our impairment framework set out above,[655] our loop analysis considers alternative transmission technologies that are capable of providing transmission to individual customers as alternatives to the incumbent LEC's loop facility. These alternative technologies may use non-wireline platforms to offer other kinds of services to customers, *i.e.*, intermodal competition, such as cable operators providing cable telephony and cable modem service in addition to cable television, or may be used solely to provide telephone and data communications service, such as fixed wireless technologies. As explained above, we will consider whether these alternative technologies permit a requesting carrier to serve the market, either through self-provisioning the necessary transmission capacity to the customer, or by obtaining the transmission capacity on a wholesale basis from other firms deploying that technology.

4. Loop Impairment by Customer Market

209. The record reflects that customers generally associated with the mass market typically use different types of loop

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Rulemaking 00-02-004, Rule 3 (June 6, 2002). To the extent such limitations exist, a carrier's ability to rely on a guaranteed long-term revenue stream from a loop to recover sunk construction costs is adversely affected.

655 *See supra* Part V.B.

facilities than customers generally associated with the enterprise market. We note that very small business customers, like residential customers, typically purchase analog loops, DS0 loops, or loops using xDSL-based technologies. We address the loops provisioned to these customers as part of our mass market analysis. All other business customers—whom we characterize as the enterprise market—typically purchase high-capacity loops, such as DS1, DS3, and OCn capacity loops. We address high-capacity loops provisioned to these customers as part of our enterprise market analysis.[656] We first analyze those loops generally provisioned to mass market customers and then analyze the high-capacity loops generally provisioned to enterprise customers.

210. In considering the different customer markets to inform our understanding of competitive carrier loop deployment, we note that our market classifications allow us to conduct our impairment analyses for the various loop types at a more granular level but are not intended to prohibit the use of UNE loops by customers not typically associated with the respective customer market class. For example, business customers typically associated with the enterprise market may require DS0 lines, particularly if they have remote business locations staffed by only a few employees where high-

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[656] We note that through the application of our new impairment standard to high-capacity loops, including impairment analyses based on each particular loop capacity level, we have considered evidence raised by joint petitioners in the High-Capacity Loop and Transport Petition. *See, e.g.*, BellSouth, SBC, and Verizon, Joint Petition for Elimination of Mandatory Unbundling of High-Capacity Loops and Dedicated Transport, CC Docket No. 96-98 (filed Apr. 5, 2001) (High-Capacity Loop and Transport Petition). Because we base our unbundling obligations with respect to high-capacity loops on our findings of impairment and non-impairment according to our new impairment standard, we dismiss the High-Capacity Loop and Transport Petition as moot.

capacity loop facilities are not required.[657] Because a competitive carrier faces the same economic characteristics to serve these customers at their remote locations with a DS0 loop that it faces to serve residential customers served by the same loop type, our customer class distinctions are not intended to preclude a competitive LEC from obtaining an unbundled DS0 loop to serve these business customers. Similarly, a competitive LEC faces the same economic considerations in provisioning a DS1 loop to a large business customer typically associated with the enterprise market that it faces in provisioning that same loop type to a very small business or residential customer typically associated with the mass market. Thus, while we adopt loop unbundling rules specific to each loop type, our unbundling obligations and limitations for such loops do not vary based on the customer to be served.

a. Mass Market Loops

(i) Introduction

211. We conclude that requesting carriers seeking to serve the mass market face varying levels of impairment without unbundled access to the transmission path between the central office and the customer premises depending upon whether the loop used to complete this path consists entirely of copper, or consists of a hybrid of fiber and copper cables, and whether a requesting carrier seeks to offer narrowband or broadband services or both. In fact, for those loops consisting of fiber from the central office to the customer premises, *i.e.*, FTTH loops, we find no impairment on a national basis.[658] Based on our review of the record, which covers the current

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[657] *See, e.g.*, WorldCom Comments at 14.

[658] As discussed more fully below, there is an unbundling obligation for narrowband voice services in one FTTH loop deployment scenario, *i.e.*, overbuild deployment in which an incumbent LEC constructs fiber transmission facilities parallel to or in replacement of its existing copper loop plant. *See infra* Part VI.A.4.a.(v)(b).

deployment of local loops, technological advancements in incumbent LEC outside plant, and the economic barriers and revenue opportunities facing competitive providers today with regard to loops, we conclude that incumbent LECs must provide, as UNEs pursuant to section 251(c)(3), copper loops, including copper loops conditioned to provide xDSL service. As discussed below, we also require incumbent LECs to provide competitive LECs the ability to line split, which allows two competitive LECs to split the loop so that one carrier can provide narrowband service and the other can provide broadband service.

212. As for our unbundling rules related to broadband, we recognize there are special considerations in crafting unbundling rules for loops used to provide broadband service. Broadband deployment is a critical domestic policy objective that transcends the realm of communications. While the development of broadband infrastructure is a fundamental and integral step in ensuring that consumers are able to fully reap the benefits of the information age, even more broadly, it is vital to the long-term growth of our economy as well as our country's continued preeminence as the global leader in information and telecommunications technologies. The Commission's primary regulatory challenge for broadband is to determine how we can help drive the enormous infrastructure investment required to turn the broadband promise into a reality. This challenge is squarely raised in our consideration of unbundling rules for last-mile facilities.

213. With respect to unbundling obligations for facilities used to provide broadband service, we are charged with determining the potential impact of our rules on advanced services, including those supported by broadband deployment and infrastructure investment, as directed by section 706 of the 1996 Act.[659] For this reason, we craft unbundling rules that provide the right incentives for all carriers, including

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[659] 47 U.S.C. § 157 nt.

incumbent LECs, to invest in broadband facilities. Thus, we decline to require unbundling on a national basis of the features, functions, and capabilities of the packetized fiber facilities of incumbent LEC hybrid loops. We require, however, incumbent LECs to provide unbundled access to the time division multiplexing (TDM) features, functions, and capabilities of their hybrid loops on a national basis. Subject to a three-year transition period explained below, we also decline to require incumbent LECs to continue to unbundle the high frequency portion of the loop. Our rules strike the appropriate statutorily required balance between ensuring competitive access and maintaining incentives to invest in next-generation networks.

(ii) Mass Market Loop Types

214. At its most basic level, a local loop that serves the mass market consists of a transmission medium, which almost always includes copper wires of various gauges. The loop may include additional components (*e.g.*, load coils, bridge taps, repeaters, multiplexing equipment) that are usually intended to facilitate the provision of narrowband voice service.

215. As a general matter, incumbent LECs use two local exchange network configurations to connect customers to their switching systems. First, carriers connect customers directly to a central office via a loop dedicated solely to a particular customer. In this configuration, the local loop consists of a single cable pair—for copper loops, this is often referred to as "home-run copper."[660] For the mass market,

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[660] *See, e.g.*, Letter from Stephen C. Gray, President, McLeodUSA, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 96-98, 98-147, 01-338, 02-33 at 8 (filed Dec. 18, 2002) (McLeodUSA Dec. 18, 2002 *Ex Parte* Letter). McLeod states that customers are served by "a connected-through copper loop, with a direct analog electrical connection between the customer's network interface and

carriers can use copper loops to provide both narrowband voice service and broadband xDSL services.[661] Providing broadband service requires the use of special equipment, such as DSLAMs[662] located in the central office (or remote terminals in the incumbent LEC's outside plant) and xDSL modems or other equipment at the customer's premises.

216. Second, incumbent LECs deploy "feeder plant" to a centralized location (referred to as a "remote terminal") where the carrier aggregates "distribution plant," *i.e.*, copper cable pairs that are used to serve individual customers. In this second configuration, then, the local loop portion of the network consists of two parts, *i.e.*, feeder plant and distribution plant.[663] The feeder plant consists of a large number of high-capacity cable pairs to accommodate a large volume of telecommunications traffic. In recent years,

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the central office main distribution frame" or one of two types of DLC systems.

[661] Subject to certain distance limitations, a carrier can provide various types of xDSL service over a copper loop with appropriate conditioning. We use the term "xDSL" to refer to DSL as a generic transmission technology, as opposed to a specific type of DSL such as ADSL (asymmetric digital subscriber line), HDSL (high-speed digital subscriber line), UDSL (universal digital subscriber line), VDSL (very-high speed digital subscriber line), and RADSL (rate-adaptive digital subscriber line).

[662] DSLAMs send the customer's voice traffic to the public, circuit-switched telephone network and the customer's data traffic (combined with that of other xDSL users) to a packet-switched data network. *See Line Sharing Order*, 14 FCC Rcd at 20920, para. 9; *see also* Walter Goralski, ADSL AND DSL TECHNOLOGIES at 252-60 (describing DSLAMs).

[663] TELCORDIA NOTES ON THE NETWORK at § 12 (describing LEC distribution networks); AT&T Comments at 184-86; AT&T Reply at 149. We recognize that carriers may categorize their outside plant facilities into three sections, *i.e.*, feeder, distribution, and customer drops. *See* AT&T Reply at 149. For the purposes of our unbundling analysis, we consider customer drops to be part of an incumbent LEC's distribution plant.

carriers have started deploying fiber optic cable in the feeder plant to handle more efficiently the increasing volume of traffic (although some legacy technologies continue to require use of copper feeder plant).[664] By contrast, the distribution plant consists generally of many copper cable pairs, *i.e.*, one direct connection or transmission path to each customer premises.

217. Carriers use digital line carrier (DLC) systems to aggregate the many copper loops that terminate at a remote terminal location,[665] multiplex such signals onto a fiber or copper feeder loop facility, and transport them to the carrier's

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[664] WorldCom Comments, Joint Declaration of Tom Stumbaugh and David Reilly (WorldCom Stumbaugh/Reilly Joint Decl.) at paras. 8-10; Letter from Leonard G. Ray, Government Relations Committee Chairman, FTTH Council, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 10 (filed Jan. 8, 2003) (FTTH Council Jan. 8, 2003 FTTH Deployment *Ex Parte* Letter) (noting that fiber feeder optimized the network for voice transmission); Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 96-98, 98-147, 01-338 at 2 (filed Dec. 12, 2002) (WorldCom Dec. 12, 2002 Next-Generation Networks *Ex Parte* Letter).

[665] Although there are different varieties of DLC systems, they typically consist of cross-connect and multiplexing equipment that are housed in remote terminals, which are intended to house a limited amount of equipment. There are three basic types of remote terminals: (1) huts, which are above-ground structures with environmental control capabilities; (2) controlled environmental vaults (CEVs), which are below-ground structures that are accessed through manholes and contain environmental control capabilities; and (3) cabinets, which are above-ground structures that are typically designed as an integrated system. *See Ameritech Corp., Transferor, and SBC Communications, Inc., Transferee, For Consent to Transfer Control of Corporations Holding Commission Licenses and Lines Pursuant to Sections 214 and 310(d) of the Communications Act and Parts 5, 22, 24, 25, 63, 90, 95, and 101 of the Commission's Rules*, CC Docket No. 98-141, Second Memorandum Opinion and Order, 15 FCC Rcd 17521, 17539, para. 34 n.94 (2000) (*Pronto Modification Order*) (describing remote terminals).

central office.[666] These DLC systems may be integrated directly to the carrier's switch (*i.e.*, Integrated DLC systems) or not (*i.e.*, Universal DLC systems).[667] Through the use of feeder loop plant and DLC systems, carriers can reduce the costs of constructing, deploying, and maintaining their outside plant.[668]

218. Although originally deployed to manage voice networks, carriers now use DLC systems to provide both voice and data services. Technological improvements have enabled carriers to use DLC systems to deliver broadband services (*e.g.*, ADSL) in addition to narrowband services.[669]

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[666] Carriers historically deployed local loops on a one-for-one basis, *i.e.*, one direct copper cable pair connecting a customer to the central office. WorldCom Stumbaugh/Reilly Decl. at para. 7. Carriers started using DLC for feeder pair relief in urban areas. *Id.* at para. 9.

[667] Universal DLC systems consist of a "central office terminal" and a "remote terminal," *i.e.*, a DLC system in the carrier's central office terminal mirrors the deployment at the remote terminal. Notes on the Network at § 12.6. By contrast, an Integrated DLC system does not require the use of a central office terminal because the DLC system is integrated into the carrier's switch (thus, the naming convention). *Id.* § 12.7; *see also* Letter from David R. Conn, Deputy General Counsel, McLeodUSA, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 96-98, 98-147, 01-338, 02-33 at 8 (filed Nov. 15, 2002) (McLeodUSA Nov. 15, 2002 DLC systems *Ex Parte* Letter); McLeodUSA Dec. 18, 2002 *Ex Parte* Letter at 8; *see also* TELCORDIA NOTES ON THE NETWORK at 2-2 to 2-5 (describing DLC systems).

[668] TELCORDIA NOTES ON THE NETWORK at § 12.6-12.7.

[669] WorldCom Stumbaugh/Reilly Decl. at paras. 9-11 (describing technological developments in DLC systems); AT&T Reply at 152-53 (noting that incumbent LECs can upgrade existing DLC systems by replacing the line cards installed in such systems). In their original form, carriers connected DLC systems to copper transmission facilities that comprised the feeder loop plant. The DLC system would convert analog signals transmitted from the customer's premises to digital signals suitable for transmission over the carrier's network. By the late 1990s, carriers were purchasing "Next Generation Digital Loop Carrier" (NGDLC) systems, which were designed for use with fiber optic cable. In addition

In particular, manufacturers have developed "line cards" that can be installed (along with other components) into a DLC system to provide broadband services, or a combination of broadband and narrowband service, to customers served by DLC systems.[670] By deploying this DSLAM functionality in a DLC system, carriers can serve customers whose copper loop facility would otherwise be too long to support the provision of xDSL service.[671] To do so has generally required incumbent LECs deploying this technology to segregate and minimize the traffic in a different way—that is, carriers dedicate a segment of their feeder plant to serving narrowband voice traffic and another segment to serving broadband traffic.[672] The feeder loop plant transporting voice

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to the fiber capability, NGDLC systems have more flexible and remote configuration capabilities than their predecessors and, depending on the manufacturer, they may contain additional features like the ability to provide broadband services. *See* Walter Goralski, ADSL AND DSL TECHNOLOGIES, 273 (1998); NEWTON'S TELECOM DICTIONARY 510 (18th ed. 2002) (defining NGDLC systems as "DLC [that] can receive and aggregate large amounts of bandwidth (higher than T-1)); *see also* Letter from Jim Lamourex, Senior Counsel, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 1-2 (filed Dec. 12, 2002) (SBC Dec. 12, 2002 *Ex Parte* Letter) (stating that SBC "considers DLC that provides both time slot interchanger and xDSL functionality as NGDLC.").

[670] Alcatel Comments at 26; Catena Comments in CC Dkt. Nos. 02-33, 95-20, and 98-10, at 5 n.7 (describing Catena's DLC system upgrade); WorldCom Stumbaugh/Reilly Decl. at para. 13; Alcatel Reply at 6; *see Pronto Modification Order*, 15 FCC Rcd at 17523-31, paras. 4-19 (describing SBC's DLC network architecture used to provide broadband service).

[671] WorldCom Stumbaugh/Reilly Decl. at para. 13.

[672] *Id.* at para. 15; Letter from W. Scott Randolph, Director—Federal Regulatory Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-337, 01-338, 96-98, 98-147, 02-33 at 10 (filed Sept. 30, 2002) (Verizon Sept. 30, 2002 *Ex Parte* Letter) (submitting diagram showing the use of two parallel feeder loops to provide broadband service through DLC systems).

traffic connects to the carrier's switch in its central office (often through intermediate electronics in the central office).[673] By contrast, the feeder loop plant transporting the broadband signal terminates at a packet switch (usually referred to as an "optical concentration device" or OCD) also located in the carrier's central office.[674]

219. In recent years, carriers have started deploying FTTH—that is, using fiber optic cable to replace traditional copper loops. Whereas the use of fiber feeder plant and DLC systems is an augmentation of the existing network and relies on the continued use of copper (albeit to a lesser degree) in the loop plant, FTTH is essentially a broad replacement of the existing loop plant. The use of fiber optic cable requires the deployment of network equipment with different features and capabilities from comparable equipment used for copper cable. As noted above, deployment of FTTH loops—that is, a transmission path consisting entirely of fiber optic cable and associated equipment between the customer's premises and the central office—remains in its infancy.

220. Carriers use different technologies to transport telecommunications over their networks. As digital transmission technologies replaced analog systems, carriers started using TDM to combine multiple transmission paths onto a

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673 Alcatel Reply at 6 (explaining that voice and data traffic are segregated in the incumbent LEC's central office).

674 AT&T Comments at 187-89; Covad Comments at 65; WorldCom Comments at 108; WorldCom Stumbaugh/Reilly Decl. at para. 13; Letter from Jonathan J. Boynton, Associate Director—Federal Regulatory, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 5 (filed Jan. 15, 2003) (SBC Jan. 15, 2003 *Ex Parte* Letter); Verizon Sept. 30, 2002 *Ex Parte* Letter at 10. Several parties explain that an OCD is equivalent to a main distribution frame. *See, e.g.*, Covad Comments at 65 (noting that the OCD demultiplexes data transmissions from the fiber feeder and distributes the signal to its next destination).

single cable.[675] TDM provides a transmission path by dividing a circuit into time slots and providing a dedicated time slot to an end user for the duration of the call. More recently, carriers have started using packet-switched technologies (*e.g.*, ATM or frame relay) to combine different types of traffic over shared facilities.[676] By using packet-switched technology, carriers can transmit voice, fax, data, video, and other over a single transmission path at the same time.

221. In light of the foregoing, we find that our unbundling rules for local loops serving the mass market must account for these different loop architectures. Therefore, we craft unbundling rules specific to each different loop type. First, we address our unbundling rules for loops consisting of copper pairs of various gauges and associated electronics (*e.g.*, load coils, repeaters, multiplexers), which we refer to as copper loops. Second, we address our unbundling rules for loops consisting of DLC systems that are fed by fiber optic cable, which we refer to as "hybrid loops." Finally, we address our unbundling rules for loops consisting entirely of fiber optic cable, which we refer to as FTTH loops.

(iii) Evidence of Loop Deployment

222. The record indicates that deployment of alternative local loop facilities for the purposes of providing telecommunications services to the mass market has been minimal. The record also indicates, however, that there is evidence that other types of network facilities deployed primarily for other purposes (*e.g.*, cable television systems, satellite technologies) can and are increasingly being

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[675] *See, e.g.*, Walter Goralski, ADSL AND DSL TECHNOLOGIES 77-98 (1998) (describing differences between packet-switched and circuit-switched networks); Walter Goralski, SONET 99-108 (2d. ed. 2000) (describing T-carrier and different multiplexing techniques).

[676] For example, some carriers use packet-switching technology as the building blocks of their networks. *See, e.g.*, NewSouth Comments at 11-13 (describing use of packet-switching technology in its network).

modified to support the delivery of narrowband and broadband services, particularly telephony and high-speed Internet access services, to the mass market. As a general matter, while these systems are increasingly being used for the delivery of retail narrowband and broadband services (*e.g.*, telephony and high-speed Internet access services), the record indicates that such systems are not being used currently to provide wholesale local loop offerings that might substitute for access to incumbent LECs' loop facilities.

223. The factual record consists of three parts. First, several parties submitted detailed studies describing local loop deployment and conditions surrounding competitive access to local loops.[677] Second, many parties described their

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[677] *See, e.g.*, BOC UNE Fact Report 2002; Letter from Dee May, Assistant Vice President, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Oct. 23, 2002) (submitting *UNE Rebuttal Report 2002* commissioned by the BOCs); CCG July 17, 2002 CLEC Survey *Ex Parte* Letter. These studies in turn rely on additional evidence to support their conclusions, such as briefings to the investment community, analyst reports, newspaper articles, and trade industry reports. Some commenters argue that unbundling requirements decrease incumbent LECs' financial rewards from selling future broadband services by increasing the risk of investment, thereby decreasing the amount of investment incumbent LECs will make in broadband infrastructure. *See, e.g.*, Corning Comments at 5-9; HTBC Comments at 28-33, App. A (submitting John Haring and Jeffrey H. Rohlfs, *The Disincentives for ILEC Broadband Deployment Afforded by the FCC's Unbundling Policies* (July 16, 2002)); Verizon Comments at 27-32 (submitting Declaration of Alfred E. Kahn and Timothy J. Tardiff); Letter from Matthew J. Tanielian, Vice President—Governmental Relations, ITI—Information Technology Industry Council, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Apr. 22, 2002) (HTBC Apr. 22, 2002 *Ex Parte* Letter); Letter from W. W. Jordan, Vice President—Federal Regulatory, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Oct. 15, 2002) (BellSouth Oct. 15, 2002 *Ex Parte* Letter). By contrast, other commenters argue that unbundling requirements do not decrease the incentives for BOCs to provide broadband services over fiber-fed loops. *See, e.g.*, AT&T Willig Decl. at paras. 15, 175; Letter From Jason D. Oxman, Vice President and Assistant General Counsel,

network operations, experiences, and future deployment plans in comments and *ex parte* letters.[678] Finally, the Commission staff has published reports arising from its monitoring of the deployment of advanced telecommunications capability and the development of local competition throughout the country.[679]

224. Relying on these sources, the record shows that incumbent LECs continue to control the vast majority of voice-grade local loops throughout the nation. The Commission staff's recent *Local Telephone Competition December 2002 Report* noted that incumbent LECs served approximately 167.5 million switched access lines, or approximately 88.6 percent of the national market.[680] The

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Covad, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Nov. 22, 2002) (Covad Nov. 22, 2002 *Ex Parte* Letter); Covad Murray Reply Decl. at paras. 99-113; Letter from C. Frederick Beckner III, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 4 (filed Dec. 6, 2002) (AT&T Dec. 6, 2002 *Ex Parte* Letter).

[678] *See, e.g.*, ACS Reply at 5-6 (describing market conditions in Alaska); BellSouth Rely, Reply Declaration of Prof. Robert G. Harris (BellSouth Harris Reply Decl.) at paras. 11-21 (submitting projections and market data related to broadband services); New York State Attorney General Reply at 4, 9-11 (describing competitive entry in New York); Letter from Rebecca H. Sommi, Vice President Operations Support, Broadview Networks, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Oct. 16, 2002) (Broadview Oct. 16, 2002 *Ex Parte* Letter); Letter from Jason Oxman, Vice President and Assistant General Counsel, Covad, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket No. 01-338 (filed Oct. 15, 2002) (Covad Oct. 15, 2002 Broadband Deployment *Ex Parte* Letter); Letter from Thomas Jones, Counsel for Allegiance, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3-4 (filed Dec. 12, 2002) (Allegiance Dec. 12, 2002 *Ex Parte* Letter).

[679] *See Seventh Wireless Report 2002*; *Third Section 706 Report 2002*, 17 FCC Rcd at 2844.

[680] *Local Telephone Competition December 2002 Report* at Table 1.

record reflects a significant growth in the amount of fiber incumbent LECs are deploying in the local loop, with most of this deployment occurring in the feeder plant rather than the distribution plant. According to some estimates, upwards of 30 percent of incumbent LEC access lines are now supported by the use of mixed fiber-copper loop facilities.[681]

(a) Self-Deployment

225. The record reflects that competitive LECs have not self-deployed alternate copper local loops to provide telecommunications services (or packages of telecommunications and other services) to the mass market. Moreover, the record indicates that, in those limited cases where competitors are deploying alternative loop facilities, competitive LECs are using fiber, although such deployment continues to be targeted primarily to serving the enterprise market rather than the mass market. We recognize, however, that potential self-deployment could use existing wireline telephony technologies and facilities or could employ other approaches that bear little or no resemblance to the current network architecture of the incumbent LECs.

226. No party seriously asserts that competitive LECs are self-deploying copper loops to provide telecommunications services to the mass market. Indeed, in the BOC UNE Fact Report 2002, the BOCs provide no evidence that competitive LECs have made any progress towards replicating the incumbent LECs' embedded base of voice-grade copper local loops.[682] Likewise, no competitive LEC claims to have made,

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[681] Covad Comments at 55 n.105 (citing *Trends in Telephone Service May 2002 Report* at Table 18.3 (21.7% of working telecommunications channels are fiber)); AT&T Reply at 80 (citing *Trends in Telephone Service May 2002 Report* at Table 18.3 (32.5% of working telecommunications channels are fiber)).

[682] In their UNE Fact Report, the BOCs rely primarily on intermodal sources to argue that viable alternatives exist to incumbent LEC local loop facilities. We address these arguments below.

let alone attempted to make, such progress. Competitive LECs generally argue that building new local loops to serve the mass market would be prohibitively expensive.[683] Considered as a whole, the record indicates that competitive LECs rely primarily on unbundled local loops to serve the mass market on a nationwide basis.[684]

227. The record demonstrates that current deployment of FTTH for providing telecommunications services to the mass market is still in its infancy.[685] Corning, for example, presents evidence of FTTH deployment to approximately 26,000 homes and asserts that competitive LECs account for 77 percent of this FTTH deployment to date.[686] The record shows further that some competitive LECs are self-deploying fiber transmission facilities primarily to serve business customers in downtown locations.[687] The record also shows that competitive LECs are self-deploying fiber transmission facilities to the mass market in certain circumstances. In particular, competitive LECs are competing in so-called

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[683] *See* Covad Comments at 16-18; AT&T Comments at 132.

[684] CompTel Reply at 24 (citing statistics compiled by Commission staff showing that competitive LECs serve 23% of the access lines in New York, 14% of the access lines in Texas, and 13% of the access lines in Illinois). Incumbent LECs assert that competitive LECs have deployed on a national basis somewhere between 16 and 23 million loops based on their interpretation of data in E911 databases. *See* BOC UNE Fact Report 2002 at I-5, II-4, and A-2. We note that CompTel's data, among other competitive LECs', are generally closer to those published by the Commission in the *Local Telephone Competition December 2002 Report.*

[685] AT&T Reply at 74.

[686] Corning Reply at 12 (citing *CSMG Study* at 51). In other studies submitted on the record, Corning estimates that competitive LECs account for 68% of the FTTH deployment nationwide. *See* Corning Nov. 20, 2002 *Ex Parte* Letter at 7.

[687] CCG July 17, 2002 CLEC Survey *Ex Parte* Letter at 6 (noting that five competitive LECs are deploying fiber in Chicago and four competitive LECs are deploying fiber in Boston and Portland).

"greenfield" markets, which require entirely new construction of local loops (in addition to the deployment of the necessary switching and other network equipment) to serve new residential communities.[688] According to at least one study, non-incumbent LEC providers (*i.e.*, competitive LECs and municipalities) have deployed 90 percent of current FTTH.[689] We also note that the Commission staff's *High Speed Services December 2002 Report* found that parties *other than* incumbent LECs deployed 92 percent of FTTH and fixed wireless service lines.[690]

(b) Intermodal Loops

228. The record presents some evidence that intermodal platforms increasingly support the provision of narrowband and broadband services to the mass market. In particular, the record indicates that cable and wireless technologies are currently being used, and will likely increasingly be used, to provide loop substitutes to support services that compete with incumbent local services.[691]

229. Cable companies have widely deployed local broadband service in the form of high-speed Internet access offered via cable modem service. As of June 2002, cable companies provided more than 9.1 million high speed lines for Internet access to consumers nationwide and the service is

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688 BOC UNE Fact Report 2002 at IV-16.

689 FTTH Council Second Reply at 2.

690 *High Speed Services December 2002 Report* at Table 5. In that report, staff found that, as of June 2002, carriers provided 6,120 fiber lines capable of supporting data transmissions over 200 kbps in at least one direction. *See id.* at Table 3.

691 BOC UNE Fact Report 2002 at IV-8 to IV-14. Current estimates are that only 1.7% of U.S. households rely on other technologies to replace their traditional wireline voice service. Allegiance Reply at 35 n.38.

available to more than 70 million homes in the nation.[692] Some cable companies also have augmented their networks to enable the provision of two-way voice telephony services.[693] For such services, the cable infrastructure serves as a replacement for loops. At this time, however, deployment of voice telephony by cable companies has been substantially exceeded by the deployment of cable modem service.[694] In their *UNE Fact Report*, the BOCs note that 1.5 million homes[695] subscribe to cable telephony on a nationwide basis. The record indicates that circuit-switched cable telephony has been deployed in portions of 20 states and is now available to about 10 million households in the United States, or about 9.6

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[692] Cable companies provided 9,172,895 high speed lines for Internet access as of June 30, 2002. *High Speed Services December 2002 Report* at Table 1. *See* Letter from Jason D. Oxman, Vice President and Assistant General Counsel, Covad, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, Declaration of Stephen Siwek and Su Sun (Covad Siwek/Sun Decl.) at paras. 58-59 (filed Nov. 20, 2002) (Covad Nov. 20, 2002 *Ex Parte* Letter). Some parties estimate that cable modem service is available to two-thirds or more of the homes in the nation. BOC UNE Fact Report 2002 at IV-12 n.59 (estimating that cable modem service is available to 70-75 million homes).

[693] BellSouth Comments at 64 (noting cable companies upgraded to provide voice in Atlanta, Jacksonville, Miami and Louisville); Letter from Florence M. Grasso, Covad, to Marlene M. Dortch, Secretary, FCC, Docket Nos. 01-338, 96-98, 98-147 at 6 (filed Apr. 19, 2002) (Covad Apr. 19, 2002 *Ex Parte* Letter) (noting cable companies spent $55 billion to upgrade their facilities).

[694] As of June 2001, only 1% of all local access lines terminated over coaxial cable facilities. For example, AT&T notes that UNE-P providers in New York alone have as many customers as cable-provided telephony does on a nationwide basis. AT&T Reply at 26.

[695] BOC UNE Fact Report 2002 at IV-10. There are approximately 108.3 million households in the nation. *See* Industry Analysis and Technology Division, Wireline Competition Bureau, *Telephone Subscribership in the United States* (Nov. 8, 2002) at Table 1 (*Telephone Subscribership November 2002 Report*).

percent of the total households in the nation.[696] Because companies originally deployed cable television systems for the provision of a one-way mass media service, retrofitting cable infrastructure to support cable telephony and broadband services requires substantial investment and modification.[697] For those cable operators that have not already augmented their networks to offer cable telephony, which encompasses the majority of the cable networks currently in operation, significant technical and operational issues must still be resolved.[698] Thus, it is difficult to predict at what point cable telephony will be deployed on a more widespread and

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[696] BOC UNE Fact Report 2002 at II-11, IV-10 (noting that Cox has the capability to offer cable telephony to "75 to 95 percent" of the consumers in Rhode Island).

[697] WorldCom Comments at 35-36, Attach. A at 23, 25-27 (Richard A. Chandler, A. Daniel Kelley, David M. Nugent, *The Technology and Economics of Cross-Platform Competition in Local Telecommunications Markets* (Apr. 4, 2002) (HAI Report)). Although precise numbers are difficult to assemble because much of the necessary information is not publicly available, there is substantial evidence in our record concerning actual and projected completion of cable plant upgrades necessary to provide voice and data services. For example, according to a Yankee Group Report, at the end of 2000, 50% of United States households had cable modem service available and this percentage was predicted to exceed 80% by the end of 2005. BellSouth Comments at 39 (citing *Broadband Access Technology: Whose Number is Up?*, Yankee Group Report (Sept. 19, 2001)). BellSouth offered more recent numbers: at the end of 2001, 70% of United States households had cable modem service available. BellSouth Reply at 48 (citing BellSouth Harris Reply Decl. at para. 9).

[698] For example, potential cable telephony providers must determine how to provide power to the consumer premises equipment (wireline systems utilizing copper facilities already provide power through the same network telephony service is provided, thus ensuring continuous access to telecommunications in the event of power outages) and ensure accurate 911 service. Allegiance Reply at 33. Allegiance notes that incumbent LEC comments rely not on current deployment but on predictions such as whether Comcast will deploy telephony after merger with AT&T and future deployment of IP telephony over cable networks.

ubiquitous basis. In addition, the record reflects that a number of cable operators are delaying their deployment of voice telephony until they are able to deploy such services over a packet-switched platform.

230. The record also shows that narrowband local services are widely available through CMRS providers. As discussed in Part IV above, one study estimates that 64.3 million households (*i.e.*, 61 percent of all U.S. households) use wireless phones.[699] The record shows that CMRS, while continuing to be primarily a complementary technology to wireline narrowband service, is growing as a substitute to wireline narrowband service with about three to five percent of CMRS subscribers using their service as a replacement for *primary* fixed voice wireline service.[700] While this percentage is small, it continues to show increasing growth. Indeed, the Commission recently relied on wireless substitution to support the Track A findings in two section 271 proceedings where residential customers in New Mexico and Nevada had replaced their landline phones with wireless ones.[701] In

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[699] *See* BOC UNE Fact Report 2002 at IV-12 (citing *Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993*, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Sixth Report, 16 FCC Rcd 13350, 13381 n.211 (2001) (*Sixth Wireless Report 2001*). Wireless phones are now a mass market consumer device used by some 45% of the United States. *Seventh CMRS Report* at 31. One study estimates that 64.3 million households (*i.e.*, 61% of all U.S. households) use wireless phones. *Id.* By contrast, 103.4 million households (*i.e.*, 95.5% of all U.S. households) own and use wireline telephones. *Telephone Subscribership November 2002 Report* at Table 1. BellSouth Comments at 64 (arguing wireless is a substitute for wireline).

[700] *See Seventh CMRS Report* at 32 n.208; *see also* BOC UNE Fact Report 2002 at IV-12 (citing *Sixth Wireless Report 2001*, 16 FCC Rcd at 13381 n.211).

[701] *See Application by SBC Communications Inc., Nevada Bell Telephone Company, and Southwestern Bell Communications Services, Inc., for Authorization to Provide In-Region, InterLATA Services in*

addition, the record demonstrates that, although promising, wireless CMRS connections in general do not yet equal traditional landline local loops in their quality, their ability to handle data traffic, and their ubiquity.[702] Finally, the record indicates that CMRS is not yet capable of providing broadband services to the mass market—although a growing number of wireless carriers make available Internet access, such access is generally limited to transmissions of 25 to 66 kbps.[703]

231. The record indicates that, at present, fixed wireless and satellite services remain nascent technologies, with limited availability, when used to provide broadband services to the mass market. Although current satellite services may be available in all 50 states, their transmission capabilities remain limited and their mass market services have few

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Nevada, WC Docket No. 03-10, Memorandum Opinion and Order, 18 FCC Rcd 7196, 7206, para. 18 (2003) (*SBC Nevada 271 Order*); *Application by Qwest Communications International, Inc. for Authorization to Provide In-Region, InterLATA Services in New Mexico, Oregon and South Dakota*, WC Docket No. 03-11, Memorandum Opinion and Order, 18 FCC Rcd 7325, 7336 n.53 (2003) (*Qwest New Mexico 271 Order*); *see also In the Matter of Application of BellSouth Corporation, BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc., for Provision of In-Region, Interlata Services in Louisiana*, CC Docket No. 98-121, Memorandum Opinion and Order, 13 FCC Rcd 20599, 20606, 20622-23, paras. 11, 29-33 (1998) (*BellSouth Louisiana II 271 Order*) (finding that PCS can be a substitute for wireline service).

[702] BellSouth Comments at 41 (stating that wireless is "[not] very effective in transmitting large amount of data at high speed."). AT&T points out, for example, that wireless service is engineered to provide only roughly 70% call completion rate while wireline call completion rates exceed 99%. AT&T Reply at 25; *see also id.* at 162-63.

[703] *Seventh CMRS Report* at 53-54. By the end of 2001, approximately eight to ten million people accessed the Internet through their wireless telephones, up from 2 to 2.5 million the year before. *Id.* at 53.

subscribers.[704] For example, combined, satellite and fixed wireless provide broadband services to approximately 200,000 customers nationwide.[705] In addition, recent financial difficulties of fixed wireless carriers suggest the potential to use such services as substitutes for local loops used to serve the mass market is limited, at least for the short term.[706]

232. Finally, we note that other technologies that can substitute for loops in providing narrowband and broadband service are currently under development. For example, some companies are experimenting with delivering narrowband voice service via power lines.[707] Such technologies have not been deployed beyond an experimental basis (*e.g.*, technical trials) at this time.

(c) Third-Party Offerings

233. The record indicates that no third parties are effectively offering, on a wholesale basis, alternative local loops capable of providing narrowband or broadband transmission capabilities to the mass market.[708] This includes intermodal platforms such as cable and satellite that have no

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[704] *See, e.g.*, WorldCom Comments at 4, 47, Attach. A at 76-78.

[705] *See High Speed Services December 2002 Report* at Table 3.

[706] *See* Sprint Comments at 24-25; *see also* Covad Siwek/Sun Decl. at paras. 49-57 & Schedule 5 (arguing that consumers are not buying satellite broadband because it does not work well in inclement weather, requires unobstructed view of southern sky, and is too expensive); Letter from Florence Grasso, Covad, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 6 (filed Oct. 21, 2002) (Covad Oct. 21, 2002 *Ex Parte* Letter).

[707] *See* Committee on Broadband Last Mile Technology, Computer Science and Telecommunications Board, National Research Council, BROADBAND: BRINGING HOME THE BITS 135-36 (2002).

[708] Covad Comments at 35 (no copper alternative); *see also* Access Integrated Networks Reply at 13; Allegiance Reply at 32-33 (contending that incumbent LEC arguments are based on predictions and speculation rather than actual marketplace conditions).

statutory or regulatory obligation comparable to the unbundling requirements of section 251(c).[709] We note that, in their various reports and other submissions, the incumbent LECs have not demonstrated that third parties are offering alternate local loop transmission on a wholesale basis.

(iv) Unbundling Analysis

234. We engage in a balancing test in determining our unbundling requirements for mass market local loops. We recognize, of course, that impairment remains our statutory touchstone. We do not rely exclusively, however, on an impairment analysis to make our unbundling determination. We retain the flexibility under our section 251(d)(2) "at a minimum" authority to consider other factors. We use this flexibility sparingly. However, we believe that the goal of swift and ubiquitous broadband deployment is so important to the United States that we consider the statutory goals outlined in section 706 and how they relate to broadband as additional factors when considering loops. In addition, we also consider the comparative weight of the costs versus benefits of unbundling and the effect of intermodal competition.[710] As explained below, based on our analysis of impairment and evaluation of other factors, we adopt loop unbundling rules for the mass market that ensure competitive access through extensive unbundling of the legacy copper loop facilities while promoting incentives to invest in next-generation network facilities and equipment through more limited unbundling of fiber-based loop facilities.

235. We conclude that requesting carriers seeking to serve the mass market face varying levels of impairment on a national basis without unbundled access to the transmission

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[709] Covad Comments at 36-37 (arguing cable, wireless satellite and competitive fiber are not capable of providing xDSL quality or ubiquity); *see* AT&T Reply at 95-98, 161-63; WorldCom Reply at 87.

[710] *See supra* Part V.D.

path between the central office and the customer premises depending upon whether the loop used to complete this path consists entirely of copper, or consists of a hybrid of fiber and copper cables, and whether a requesting carrier seeks to offer narrowband or broadband services or both. Pursuant to our section 251(d)(2) unbundling standard, we consider generally whether the potential revenue opportunity exceeds the costs, taking into consideration the relevant entry barriers—*i.e.*, scale economies, sunk costs, first-mover advantages, and barriers within the control of the incumbent LEC—and evidence of actual marketplace conditions.

236. Because of the importance of broadband to the American public and telecommunications users generally, we also consider other factors, foremost among these our obligation to ensure adequate incentives for infrastructure investment under section 706 of the Telecommunications Act of 1996, under our "at a minimum" authority in section 251(d)(2). For copper loops, we find on a national basis that requesting carriers are impaired without access to these loops, including copper subloops, because their absence is likely to make entry uneconomic.[711] For other types of loops (*i.e.*, FTTH loops and hybrid fiber/copper loops used in packet-based transmissions), however, we recognize that additional revenue opportunities associated with increased bandwidth capabilities may alleviate, in direct proportion to the level of

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[711] In its *Verizon* decision, the Supreme Court stated that "the most costly and difficult part of [replicating the incumbent LEC's network] would be laying down the 'last mile' of feeder wire, the local loop, to the thousands (or millions) of terminal points in individual houses and businesses." *Verizon*, 535 U.S. at 490-91. Indeed, in its *USTA* decision, the D.C. Circuit quotes the following passage from this Supreme Court decision in its discussion of cost disparities: "entrants may need to share some facilities that are *very expensive to duplicate* (say, loop elements) in order to be able to compete in other, *more sensibly duplicable* elements (say, digital switches or signal-multiplexing technology)." *USTA*, 290 F.3d at 426 (citing *Verizon*, 535 U.S. at 510 n.27) (emphasis added by D.C. Circuit).

fiber deployment, at least some of these entry barriers. Moreover, our obligation to ensure adequate infrastructure investment incentives pursuant to section 706 supports limitations on the unbundling of fiber-based loops. Finally, the existence of intermodal competition for mass market broadband services reduces the need for more extensive unbundling rules.

(a) Impairment

237. The costs of local loops serving the mass market are largely fixed and sunk. By fixed we mean that these costs are largely insensitive to the number of customers being served.[712] Much of the cost applies whether a carrier serves a single residential customer or ten thousand residential customers: that carrier must secure rights-of-way, dig trenches or place poles, and run wire underground or along poles.[713] Such deployment costs are also sunk. That is, local loop facilities are not fungible because they cannot be used for any other purpose if the investment fails.[714] If a new entrant overbuilds to serve a mass market customer and loses that customer to another carrier, the new entrant cannot economically redeploy that loop to another location. Its investment might be lost unless it could find a purchaser for its redundant loops. This is true regardless of whether the new entrant was providing

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[712] Covad Comments at 28; AT&T Reply at 150, 154-55 (citing AT&T Comments, Attach. B, Declaration of Richard N. Clarke (AT&T Clarke Decl.) at para. 23); WorldCom Reply at 14-18 (citing WorldCom Reply, Attach. A, Declaration of Mark T. Bryant (WorldCom Bryant Reply Decl.) at paras. 3, 5-14).

[713] *See* Covad Comments at 28 (arguing that incumbents could afford such massive fixed costs because they had 100% of the market share when they constructed their loop plant); WorldCom Reply at 63 (citing WorldCom Bryant Reply Decl. at para. 11). We note that fixed costs may strongly affect small businesses because, among other things, they likely serve fewer customers. See *supra* Part V.B. for a discussion of the relationship between fixed costs and scale economies.

[714] AT&T Reply at 144; WorldCom Reply at 16.

narrowband or broadband service, or both. A carrier will not deploy mass market loops unless it knows in advance that it will have customers that will generate sufficient revenues to allow it to recover its sunk loop investment.[715] This certainty could most easily be achieved through long-term service contracts and a large, guaranteed customer base. In contrast to the enterprise market, however, long-term contracts are not commonplace in the mass market for either the narrowband or the broadband services and we have no information in our record to indicate that consumers ordinarily would accept such terms.[716] As new entrants, competitive LECs do not enjoy a large guaranteed subscriber base that would provide a predictable source of funding to offset their local loop deployment costs.[717] For these reasons, we find that the costs of self-provisioning mass market loop facilities are

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[715] NuVox Comments at 74-75; AT&T Reply at 154 (citing AT&T Willig Reply Decl. at paras. 21-22, 26, 39); *see also* Covad Reply at 16 (arguing that there are no "uncommitted entrants" because of the extremely high sunk costs in constructing loop plant).

[716] The record reflects that mass market customers typically purchase services offered over voice-grade loops on a month-to-month basis at relatively low prices. Compared to higher-capacity loops demanded by other customer classes, loops serving the mass market require less complex technology. Nevertheless, replicating a single loop for a mass market customer is prohibitively expensive due to the relatively low revenue per loop as compared to the cost of construction. This factor, coupled with the market's predominant use of short-term customer commitments, equates to a very low profit margin per loop, especially for new entrants. Moreover, loops for mass market customers exhibit substantial economies of scale, in that the larger the number of loops provisioned in a given area, the lower the average cost of provisioning each loop.

[717] As noted earlier in this Order, large sunk costs make it more difficult to ramp up to scale and, therefore, overcome a scale economies problem. *See supra* Part V.B.

demonstrably greater than those faced universally by new entrants in other industries.[718]

238. Incumbent LECs also enjoy first-mover advantages that work with the steep costs noted above to compound the entry barriers associated with local loop deployment. When the incumbent LECs installed most of their loop plant, they had exclusive franchises and, as such, the record shows that they secured rights-of-way at preferential terms and at minimal costs.[719] By contrast, our record shows that new entrants have no such advantage.[720] Even if a competitive LEC obtains speedy resolution of rights-of-way issues, it may still experience delays involved with constructing new loop plant. Incumbent LECs, of course, experience no such delays when providing narrowband or broadband services over their legacy copper loops. Because these loops are already deployed, they are available immediately for providing narrowband services (*i.e.*, voice, fax, dial-up Internet access) and available after performing any necessary line

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[718] AT&T Comments at 127; Covad Reply at 15-18; WorldCom Reply at 14-18 (citing WorldCom Bryant Reply Decl. at paras. 3, 5-14).

[719] *See, e.g.*, Covad Comments at 28 (stating that incumbents often obtained rights-of-way through the use of the states' eminent domain power); AT&T Willig Decl. at paras. 62-63 (arguing that as the first mover, incumbents received rights-of-way from local governments with only minimal transaction costs because the residents in that neighborhood or municipality otherwise would not receive any telecommunications services).

[720] *See* WorldCom Comments at 33 (contending that competitive LECs have been hindered in their ability to install their own loops by "municipal ordinances that have imposed excessive, non-cost based fees on access to rights-of-way and have also delayed such access through unnecessary and cumbersome application procedures and bonding requirements."). Although section 224 of the Act imposes nondiscriminatory access obligations on incumbent LECs with respect to their poles, ducts, conduits, and rights-of-ways, we note that such access does not eliminate the transaction costs or first-mover advantages described above. 47 U.S.C. § 224.

conditioning for providing broadband service. Furthermore, competitive LECs are also faced with the problem of overcoming the incumbent LECs' established brand name recognition for providing reliable service in order to convince (potentially reluctant) mass market customers to change carriers.

239. According to several commenters, due to the high fixed costs described above, the incumbents LECs designed their networks to minimize the extent to which they must modify their loop plant when adding new customers or services.[721] Accordingly, when incumbent LECs construct loops, they typically add several spare wire pairs to the customer's location because the cost of these spare wires is small in comparison to the cost of adding these pairs at a later date.[722] This design lowers the incumbent LECs' cost of adding customers. Incumbent LECs achieved low average costs because historically they have served 100 percent of demand in any given area. Their investments were recovered, in most cases, through regulated rates and an authorized rate of return.[723] For a new entrant to match or even come close to the incumbent LECs' economies of scale, at a minimum, it

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721 *See* AT&T Reply at 149.

722 *See id.* (stating that "a customer drop may contain six pairs of wires rather than two because the carrying costs of the extra capacity are small compared to the cost of deploying additional capacity later (*e.g.*, to add a second or third line)"); *see also* AT&T Reply at 150 n.101 (explaining the incumbent LECs' use of bridged tap and additional transmission electronics to maximize the use of the existing plant); WorldCom Reply at 15 (citing WorldCom Bryant Reply Decl. at paras. 11-14; AT&T Clarke Decl. at para. 23) (arguing that "once a cable route is established, there are only small incremental structure costs to serving additional customer lines located along the route.").

723 AT&T Reply at 150 (citing AT&T Reply, Tab C, Declaration of Anthony Fea and Anthony Giovannucci (AT&T Fea/Giovannucci Reply Decl.) at paras. 6-7).

would have to capture quickly a significant percentage of the market.[724]

240. We recognize, however, that the deployment of next-generation network facilities and equipment—that is, fiber optic cables and equipment used to provide packet-based services—affects our analysis. Although some of the entry barriers exist for both all-copper and all-fiber loops (*e.g.*, the costs are both fixed and sunk, and such deployment is characterized by scale economies),[725] the revenue opportunities are significantly greater for fiber-based construction. The record indicates that carriers can earn significant returns on their fiber-based investment by providing a suite of services ranging from traditional voice to full-motion video.[726] In fact, the potential rewards of fiber deployment may offset the likelihood that competitive LECs will view entry as uneconomic. In addition, the barriers faced in deploying fiber loops, as opposed to existing copper loops, may be similar for both incumbent LECs and competitive LECs.[727] Both incumbent and competitive LECs must

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[724] *See, e.g.*, AT&T Reply at 157 (arguing that even with an "aggressive" market share of 30%, the new entrant's loop investments per line costs would exceed the incumbent's by 45 to 87% and its monthly loop costs would exceed the incumbent's by 39 to 65%).

[725] Covad Comments at 27 (arguing that xDSL "signals are no easier or cheaper to replicate than loops carrying POTS"); WorldCom Reply at 15 (citing AT&T Clarke Decl. at para. 23).

[726] Corning Comments at 19-20 (asserting that incumbent and competitive LECs are on equal footing for FTTH deployment). Corning and the FTTH Council estimate that FTTH loops allow revenue opportunities of approximately $33 per subscriber compared to $18 per subscriber for xDSL-based services. Letter from Timothy J. Regan, Senior Vice President, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket 01-338, Attach. at 33 (filed Nov. 26, 2002) (Corning Nov. 26, 2002 FTTH Deployment *Ex Parte* Letter).

[727] *See, e.g.*, Verizon Reply at 40 n.117 (arguing that both incumbents and competitive LECs must incur and recover the costs of

purchase fiber and the associated equipment, negotiate access to the necessary rights-of-way, obtain any necessary government permits, hire skilled labor, and manage their construction projects in order to deploy fiber loops. Moreover, by some estimates, competitive LECs enjoy advantages that incumbent LECs do not have, such as lower labor costs and superior back office systems.[728]

(b) Other Considerations

241. As we have stated elsewhere, broadband deployment is a critical policy objective that is necessary to ensure that consumers are able to fully reap the benefits of the information age.[729] In this regard, we weigh how our rules related to broadband deployment address other policy considerations. In particular, we seek to encourage investment in next-generation network architecture suitable

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obtaining franchises and construction permits, and building out fiber loops). Similarly, as discussed earlier in this Order, incumbent LECs' first-mover advantages would be greatly reduced in greenfield situations. *See supra* Part V.B.

[728] Corning estimates construction accounts for more than 50% of FTTH deployment costs. Letter from Timothy J. Regan, Senior Vice President, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, Attach. 2 at 9 (filed Nov. 20, 2002) (Corning Nov. 20, 2002 FTTH Deployment *Ex Parte* Letter). Corning further explains that labor is "the largest component" of construction costs, and that competitive LECs enjoy an advantage. *Id.*, Attach. 2 at 10-11. *See CSMG Study* at 14 (noting that competitive LEC FTTH construction costs for labor are lower than those of incumbent LECs); BOC Shelanski Reply Decl. at para. 3; *see also* Verizon Reply at 42.

[729] *See, e.g., Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Universal Service Obligations of Broadband Providers*, CC Docket Nos. 02-33, 95-20, 98-10, Notice of Proposed Rulemaking, 17 FCC Rcd 3019 (2002) (*Wireline Broadband NPRM*); *Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services*, CC Docket No. 01-337, Notice of Proposed Rulemaking, 16 FCC Rcd 22745, 22747, para. 4 (2001) (*Dom/Non-Dom NPRM*).

for delivering advanced telecommunications capability throughout the nation. We also look to promote the potential of broadband in a minimally regulated environment in accordance with the deregulatory intent of the 1996 Act. Finally, we seek to unleash the innovation that has been characteristic of the computer and software industries. We expect to develop unbundling rules that serve these broad goals so that consumers ultimately benefit from a ubiquitous, efficient, nationwide broadband deployment.

242. *Section 706.* In determining what our unbundling rules for loops used for broadband services should be, we also are guided by the goals of, and our obligations under, section 706 of the 1996 Act.[730] Section 706 directs the Commission to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans" by using regulatory measures that "promote competition in the local telecommunications market" and "remove barriers to infrastructure investment."[731] Through its "at a minimum" language, section 251(d)(2) provides the Commission with the discretion to consider factors in addition to impairment before requiring unbundling.[732] We find that this discretion is appropriately exercised by evaluating whether unbundling of local loops used to provide broadband services to the mass market is consistent with our section 706 mandate. In particular, we consider whether our unbundling requirements encourage the deployment of advanced telecommunications capability to all Americans by, among other things, promoting competition in the local market, promoting facilities-based deployment, promoting the

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730 47 U.S.C. § 157 nt.

731 *Id.*

732 With regard to the Commission's authority to "consider other elements" under the "at a minimum" language, the Court of Appeals for the D.C. Circuit has stated, "[w]e assume in favor of the Commission that is so." *USTA*, 290 F.3d at 425.

delivery of innovative advanced services offerings, and removing barriers to infrastructure investment. In addition, we note that section 706 promotes the deployment of "high-speed, switched, broadband telecommunications capability," which counsels in favor of measures aimed at spurring the deployment of packet-switching technologies.[733]

243. Upgrading telecommunications loop plant is a central and critical component of ensuring that deployment of advanced telecommunications capability to all Americans is done on a reasonable and timely basis and, therefore, where directly implicated, our policies must encourage such modifications. Although a copper loop can support high transmission speeds and bandwidth, it can only do so subject to distance limitations and its broadband capabilities are ultimately limited by its technical characteristics.[734] The replacement of copper loops with fiber will permit far greater and more flexible broadband capabilities.[735] Although both the material used in the transmission path and the attached equipment work together to enable broadband capabilities, the record shows that, of the two, it is the upgrade to the transmission path (the loop) that is, by far, the more costly, complex, and risky endeavor.

244. In establishing our unbundling requirements, we consider our section 706 mandate in light of the technical

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[733] 47 U.S.C. § 157 nt. Section 706 defines "advanced telecommunications capability" as "high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology."

[734] *Line Sharing Order*, 14 FCC Rcd at 20919, para. 8 n.9.

[735] BROADBAND: BRINGING HOME THE BITS, *supra* note 707, at 129-30; Corning Comments at 2; Letter from Timothy Regan, Senior Vice President, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, FTTH Council Attach. at 28 (filed Jan. 29, 2003) (Corning Jan. 29, 2003 *Ex Parte* Letter).

characteristics of local loops. As we discuss in more detail below, we determine that our obligation to ensure the deployment of advanced telecommunications capability under section 706 warrants different approaches with regard to existing loop plant and new loop plant. With existing copper loops, all investment in advanced telecommunications capability is necessarily limited to the equipment, not the transmission facility. Therefore, our obligation to encourage infrastructure investment tied to legacy loops is more squarely driven by facilitating competition and promoting innovation. Because the incumbent LEC has already made the most significant infrastructure investment, *i.e.*, deployed the loop to the customer's premises, we seek, through our unbundling rules, to encourage both intramodal and intermodal carriers (in addition to incumbent LECs) to enter the broadband mass market and make infrastructure investments in equipment. In addition, we seek to promote the deployment of equipment that can unleash the full potential of the embedded copper loop plant so that consumers can experience enhanced broadband capabilities before the mass deployment of fiber loops. We expect that more innovative products and services will follow the deployment of new loop plant and associated equipment. With new loop plant, however, encouraging infrastructure investment must be balanced between ensuring that incumbent LECs retain adequate incentives to upgrade their loop plant and ensuring that competition continues to drive the deployment of innovative broadband services. These considerations come into play most acutely in determining the appropriate unbundling requirements for loops used to provide broadband service to the mass market.[736]

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[736] We note that one party, Corning, requested that the Commission forbear from imposing on incumbent LECs the resale requirements set forth in section 251(c)(4) for FTTH loops. Corning Comments at 31-33. Obviously, Corning's request is outside the scope of this proceeding and, thus, we will not address it in this Order.

245. *Intermodal Competition.* Upon review of the extensive record on intermodal competition compiled in this proceeding, we determine that, although the existence of intermodal loops does not warrant a finding of no impairment, such competition is a factor to consider in establishing our unbundling requirements. We have discussed the competitive characteristics of intermodal loops in preceding paragraphs. Indeed, the broadband competition posed by cable operators in the mass market supports our decision to refrain from unbundling requirements on the features, functions, and capabilities of certain types of loops. Similarly, the state of intermodal competition, including competition from wireless telephony, in the mass market for narrowband services supports our approach to unbundling the legacy loops of incumbent LECs. Neither wireless nor cable has blossomed into a full substitute for wireline telephony. In addition, because wireless does not yet demonstrate the technical characteristics necessary to provide broadband services, unbundling incumbent LEC legacy loops is necessary for mass market consumers to realize the benefits of competition both for narrowband and broadband services, as well as both combined as a bundle.

246. There appear to be a number of promising access technologies on the horizon[737] and we expect intermodal platforms to become increasingly a substitute for wireline voice telephony services and for wireline broadband services. As we continue to assess impairment in the future, we recognize that the increased presence of viable alternative platforms may help increase competitive alternatives, both retail and wholesale, in the narrowband and broadband mass markets. The presence of such alternatives in the future may enable us to find that requesting carriers are no longer

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[737] *See, e.g., Third Section 706 Report 2002*, 17 FCC Rcd at 2877-80, paras. 79-88 (describing other potential intermodal platforms capable of providing broadband service).

impaired in their ability to compete without access to incumbent LEC loops.[738]

(v) Specific Unbundling Requirements for Mass Market Loops

247. In this section, we address the specific unbundling requirements for mass market loops. We address the requirements based on the three primary types of local loops noted above, *i.e.*, copper loops, FTTH loops, and hybrid fiber/copper loops.

(a) Legacy Networks

248. *Stand-Alone Copper Loops.* As discussed above, we find that requesting carriers are generally impaired on a national basis without unbundled access to an incumbent LEC's local loops, whether they seek to provide narrowband or broadband services, or both.[739] However, we determine that unbundled access to conditioned, stand-alone copper loops (which, of course, may be shared between two competitive LECs as discussed below) is sufficient to overcome such impairment for the provision of broadband services. Consequently, we find that, subject to the grandfather provision and transition period explained below, incumbent LECs do not have to unbundle the HFPL for requesting telecommunications carriers.

249. With more than 6 million kilometers of copper cable deployed, it is clear that copper remains the predominant loop type serving the mass market[740] and no party seriously asserts

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[738] We note that the impairment standard set forth in section 251 is different from, and does not prejudge, the standard we use to assess a carrier's dominant or non-dominant status. *See Dom/Non-Dom NPRM.*

[739] *See* our discussion of the high fixed and sunk costs, large economies of scale, and operational barriers such as rights-of-way, *supra* Part VI.A.4.a(iv)(a).

[740] *See Statistics of Communications Common Carriers September 2002 Report* at Table 2.2.

that stand-alone copper loops should not be unbundled in order to provide services to the mass market.[741] To address the impairment discussed above, we conclude that incumbent LECs must provide unbundled access to local loops comprised of copper wire.[742] That is, incumbent LECs shall provide, as a UNE, access to the complete transmission path comprised of a copper local loop between the central office and the customer's premises. The copper loop network element is a single local loop, including all intermediate devices (*e.g.*, repeaters, load coils) used to establish the transmission path. Consistent with the definition the Commission adopted in the *UNE Remand Order*, this complete transmission path between the incumbent LEC's main distribution frame (or its equivalent) in its central office and the demarcation point at the customer's premises[743] also includes the features, functions, and capabilities of the copper loop.[744] We include within this network element all local loops comprised of copper cable, including two- and four-wire analog voice-grade loops, digital loops (*e.g.*, DS0s and

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[741] *See, e.g.*, SBC Reply at 109 (stating that competitive LECs have "ample opportunity to offer voice and data over the legacy network" and can "access the copper distribution subloop at the first accessible point in the ILEC's network . . . and use it to provision DSL service."). In addition, we note that some commenters assumed continued unbundling of loops to support their argument that UNE-P is unnecessary. *See, e.g.*, Verizon Reply at 113 (arguing that UNE-P is unnecessary because a competitive LEC could simply "use hot cuts and a UNE-L strategy to serve mass market customers.").

[742] To be clear, we require incumbent LECs to unbundle both existing copper loops and copper loops as they are newly deployed.

[743] As discussed below, this also includes any inside wire owned by the incumbent LEC. *See infra* Part VI.B.2 (discussing inside wire).

[744] As noted above, the Act defines the term "network element" as "a facility or equipment used in the provision of a telecommunications service. Such term also includes features, functions, and capabilities that are provided by means of such facility or equipment." 47 U.S.C. § 153(29).

ISDN lines) and two- and four-wire loops conditioned to transmit the digital signals needed to provide xDSL service. Consistent with their obligation to provide unbundled local loops on just, reasonable, and nondiscriminatory terms and conditions, incumbent LECs must provide the requesting carriers with nondiscriminatory access to the same detailed information about the loop that is available to the incumbent LEC in the same time intervals it is provided to the incumbent LEC's retail operations.[745] We note that our requirements for stand-alone copper loops apply to both copper loops that are in active service and those that are deployed in the network as spares.[746]

250. The practical effect of this unbundling requirement is to ensure that requesting carriers have access to the copper transmission facilities they need in order to provide narrowband or broadband services (or both) to customers served by copper local loops. We understand that this unbundling obligation may require an incumbent LEC to

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[745] *See supra* Part VI.I (discussing incumbent LECs' OSS obligations); *see also UNE Remand Order*, 14 FCC Rcd at 3884-87, paras. 426-31 (requiring incumbent LECs to provide, among other things, the composition of the loop material; the existence, location and type of any electronic or other equipment on the loop; the loop length; the wire gauge(s) of the loop; and the electrical parameters of the loops); *Line Sharing Order*, 14 FCC Rcd at 20958-73, paras. 96-130; 47 C.F.R. § 51.319(g).

[746] These requirements also include the obligation to condition the spare pair so that the requesting carrier may provide xDSL service. As Qwest points out, when incumbent LECs construct new loop plant, they frequently overlay fiber facilities that supplement existing loops. Qwest Comments at 45; *see* Alcatel Comments at 16 (noting that, when incumbent LECs deploy fiber loops, competitive LECs would continue to maintain access to legacy copper transmission facilities). Thus, the construction of new facilities does not in itself alter a competitive LEC's ability to use the incumbent LEC's network. Qwest explains that it "does not proactively remove copper facilities in the case of an overlay" so that requesting carriers should be able to continue providing service in these circumstances. Qwest Comments at 45-46.

provide the functionality available in certain equipment, as well as to remove the functionality from other equipment (*i.e.*, to condition the loop), in order to provide a complete transmission path between its main distribution frame (or equivalent) and the demarcation point at the customer's premises.[747] As noted elsewhere in this Order, we find that line conditioning constitutes a form of routine network modification that must be performed at the competitive carrier's request to ensure that a copper local loop is suitable for providing xDSL service.[748]

251. *Line Splitting.* We find that when competitive carriers opt to take an unbundled stand-alone loop, the incumbent LEC must provide the requesting carrier with the ability to engage in line splitting arrangements. We use the term "line splitting" to describe the scenario where one competitive LEC provides narrowband voice service over the low frequency of a loop and a second competitive LEC provides xDSL service over the high frequency portion of that same loop. The Commission previously found that existing rules require incumbent LECs to permit competing carriers to engage in line splitting where a competing carrier purchases the whole loop and provides its own splitter to be collocated in the

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[747] As discussed in Part VI.A. *infra*, we readopt incumbent LECs' line conditioning obligations. The Commission noted in its *Line Sharing Order* that devices such as load coils and bridged taps interfere with the provision of xDSL service and, absent a certain showing by the incumbent LEC to the relevant state commission, must be removed at the request of the competitive LEC. *See Line Sharing Order*, 14 FCC Rcd at 20952-54, paras. 83-86. We determine that, upon the competitive LEC's request, incumbent LECs must similarly condition unbundled stand-alone loops to make them xDSL-compatible.

[748] We also require such conditioning for the HFPL consistent with the grandfather provision and transition period described below. *See Line Sharing Order*, 14 FCC Rcd at 20952-54, paras. 83-87.

central office.[749] We reaffirm those requirements but, for purposes of clarity and ensuring regulatory certainty, we find that it is appropriate to adopt line splitting-specific rules.

252. Included among these rules is the requirement that incumbent LECs modify their OSS in such a manner as to facilitate line splitting. We also readopt the Commission rules requiring incumbent LECs to provide access to physical loop test access points on a nondiscriminatory basis for the purpose of loop testing, maintenance, and repair activities, and allowing incumbent LECs to maintain control over the loop and splitter equipment and functions in certain circumstances. We do not anticipate that the incumbent LECs will have any difficulty implementing such an obligation because the Commission required as much from them in its

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[749] *See Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance Pursuant to Section 271 of the Telecommunications Act of 1996 to Provide In-Region, InterLATA Services in Texas*, CC Docket No. 00-65, Memorandum Opinion and Order, 15 FCC Rcd 18354, 18515-16, paras. 324-25 (2000) (*SWBT Texas 271 Order*); *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Third Report and Order on Reconsideration in CC Docket No. 98-147, Fourth Report and Order on Reconsideration in CC Docket No. 96-98, Third Further Notice of Proposed Rulemaking in CC Docket No. 98-147, Sixth Further Notice of Proposed Rulemaking in CC Docket No. 96-98, 16 FCC Rcd 2101, 2109-14, paras. 16-26 (2001) (*Line Sharing Reconsideration Order*). These Orders expressly determined that rules 51.307(c) (requiring incumbent LECs to provide unbundled access to a UNE in a manner that "allows the requesting telecommunications carrier to provide any telecommunications service that can be offered by means of that network element") and 51.309(a) (prohibiting an incumbent LEC from imposing "limitations, restrictions, or requirements on . . . the use of unbundled network elements that would impair the ability of a requesting telecommunications carrier to offer a telecommunications service in the manner" the requesting carrier intends) require incumbent LECs to permit line splitting.

Line Sharing Reconsideration Order.[750] Furthermore, so long as the unbundled loop-switch combination is permitted in a particular state, the rules make clear that incumbent LECs must permit competitive LECs providing voice service through that arrangement to line split with another competitive LEC.[751] As the Commission did before, we encourage incumbent LECs and competitors to use existing state commission collaboratives and change management processes to address OSS modifications that are necessary to support line splitting.[752]

253. *Unbundled Access to Copper Subloops.* We require incumbent LECs to provide unbundled access to their copper subloops, *i.e.*, the distribution plant consisting of the copper transmission facility between a remote terminal and the

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[750] *See Line Sharing Reconsideration Order*, 16 FCC Rcd at 2111, para. 20 (requiring incumbent LECs to make all necessary network modifications, including providing nondiscriminatory access to OSS necessary for pre-ordering, ordering, provisioning, maintenance and repair, and billing for loops used in line splitting arrangements). For the reasons explained herein, we grant WorldCom's request for clarification that requesting carriers may engage in line splitting. MCI WorldCom Petition for Clarification, CC Docket No. 96-98 at 10 (filed Feb. 17, 2000) (MCI WorldCom Feb. 17, 2000 Petition for Clarification).

[751] Again, the Commission required this in an earlier Order. *See Line Sharing Reconsideration Order*, 16 FCC Rcd at 2110-11, para. 19.

[752] *See id.* at 2111-12, para. 21. We note with support the work already performed by state commissions in this area and we encourage states to continue overseeing and participating in such collaboratives. *See, e.g.*, New York Department Comments at 6-7. Some commenters claimed that BOCs reject competitive LEC xDSL orders because the BOCs are not the local voice provider and they refuse to coordinate the HFPL order with the voice competitive LEC. *See, e.g.*, WorldCom Comments, Declaration of Ian Graham (WorldCom Graham Decl.) at para. 33. We do expect incumbent LECs to implement, in a timely fashion, "practical and reasonable measures" to enable competitive LECs to line split. *Id.*

customer's premises.[753] We conclude that our impairment finding extends to copper subloops because they are part and parcel of the local loop plant of incumbent LECs – requesting carriers face precisely the same barriers to entry for a subloop as with a copper loop that extends from the incumbent LEC's central office to the customer's premises. Indeed, we note that several incumbent LECs argue that accessing copper subloops provides competitive LECs with sufficient access to the loop for the provision of the services that they seek to provide.[754] Consistent with our section 706 goal to spur deployment of advanced telecommunications capability, we do not require incumbent LECs to provide access to their fiber feeder loop plant on an unbundled basis as a subloop UNE. As explained below, in light of our decision to refrain from unbundling the packetized capabilities of incumbent LECs, incumbent LECs will provide access to their fiber feeder plant only to the extent their fiber feeder plant is necessary to provide a complete transmission path between the central office and the customer premises when incumbent LECs provide unbundled access to the TDM-based capabilities of their hybrid loops. We encourage parties to negotiate access arrangements that would facilitate competitive LEC access to copper subloops. Specifically, we expect that incumbent LECs will develop wholesale service offerings for access to their fiber feeder to ensure that competitive LECs have access to copper subloops. Of course, the terms and conditions of such access would be subject to sections 201 and 202 of the Act.[755]

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[753] Letter from Derek R. Khlopin, High Tech Broadband Coalition, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, Attach. at 2 (filed Feb. 14, 2003) (HTBC Feb. 14, 2003 *Ex Parte* Letter) (submitting proposed rule language).

[754] Qwest Comments at 46; SBC Comments at 53-54; Verizon Comments at 89 n.296.

[755] For example, incumbent LECs could develop, and provide pursuant to sections 201/202 of the Act, telecommunications services that

254. We define the copper subloop UNE as the distribution portion of the copper loop that is technically feasible to access at terminals in the incumbent LEC's outside plant (*i.e.*, outside its central offices), including inside wire.[756] We find that any point on the loop where technicians can access the cable without removing a splice case constitutes an accessible terminal. As HTBC points out, a non-exhaustive list of these points includes the pole or pedestal, the serving area interface (SAI), the NID itself, the MPOE, the remote terminal, and the feeder/distribution interface. To facilitate competitive LEC access to the copper subloop UNE, we require incumbent LECs to provide, upon a site-specific request, access to the copper subloop at a splice near their remote terminals.[757] With respect to the copper subloop, in addition to providing greater specificity of access points consistent with the HTBC proposal, we readopt our previous requirements for providing unbundled access to subloop UNEs. Unlike our previous subloop unbundling rules, however, the rules we adopt herein do not require incumbent LECs to provide unbundled access to their feeder loop plant as stand-alone UNEs, thereby limiting incumbent LEC subloop unbundling obligations to their distribution loop plant.

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are similar to the special access services they already provide. Such services would, in effect, offer competitive LECs access to the shared fiber feeder plant (and any necessary cross-connections or similar functions) in order to obtain access to equipment in a remote terminal or to the copper subloop itself. We note that at least one incumbent LEC has supported making available wholesale broadband service offerings because such arrangements would make commercial sense. *See, e.g.*, Verizon Comments at 82 (arguing that incumbent LECs should be permitted to offer wholesale broadband services in lieu of unbundling its broadband network equipment and facilities). *But see* WorldCom Reply at 120-21 (criticizing Verizon's proposal).

[756] HTBC Feb. 14, 2003 *Ex Parte* Letter at 2 (submitting proposed rule language).

[757] *Id.*

255. *High Frequency Portion of the Loop.* Although we make the whole copper loop and the copper subloop available to requesting carriers as UNEs, along with the ability to engage in line splitting, some parties have requested that we also make available the high frequency portion of the copper loop. For reasons we discuss below, we decline to do so except as specified on a grandfathered basis. As an initial matter, we use the term "line sharing" to describe when a competing carrier provides xDSL service over the same line that the incumbent LEC uses to provide voice service to a particular end user, with the incumbent LEC using the low frequency portion of the loop and the competing carrier using the HFPL. Continued access to the incumbent LEC's conditioned, stand-alone copper loops and subloops enables a requesting carrier to offer and recover its costs from all of the services that the loop supports, including xDSL service.[758] Commenters have not argued that it is technically infeasible to provide xDSL service over a stand-alone copper loop nor have they argued that it is technically infeasible to provide xDSL service over a line split loop (*i.e.*, a loop that is shared by two competitive LECs—one offering voice service and the second offering xDSL service). Advocates for reinstating unbundled access to the HFPL instead offer various economic and operational reasons for why they would be impaired without such access, generally reiterating the same reasons that were offered in the Commission's original line sharing proceeding in 1999.[759]

256. As we noted above, the D.C. Circuit vacated these rules and directed the Commission to apply some limiting

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[758] Moreover, as explained above, the Commission reaffirms the incumbent LECs' obligation to permit line splitting so that a competitive LEC seeking only to offer xDSL service (*i.e.*, a data LEC) may partner with a voice-only competitive LEC to provide the service—xDSL—that the data LEC offered under the Commission's now-vacated rules.

[759] *Line Sharing Order*, 14 FCC Rcd at 20931-38, paras. 38-53.

standard rationally related to the goals of the Act.[760] The D.C. Circuit stated that the Commission must weigh the costs associated with unbundling in making its section 251(d)(2) determinations.[761] More generally, the D.C. Circuit explained that the Commission must make an effort to balance these costs against the benefits of unbundling.[762] It is against this backdrop that the Commission makes its decision on line sharing.

257. In its *Line Sharing Order*, the Commission found that competitive LECs were impaired without unbundled access to the HFPL because, among other things, purchasing a stand-alone loop would be too costly for carriers seeking to offer only broadband service.[763] It also determined that requiring these carriers to offer voice service in order to provide xDSL service would impose on them the cost of providing circuit-switched voice services, which includes the development of marketing, billing, and customer care infrastructure to serve the needs of voice customers.[764] In addition, the Commission found no evidence that requesting carriers could obtain the HFPL from another competitive LEC (*i.e.*, what the Commission subsequently termed "line splitting").[765]

258. As an initial matter, we disagree with the Commission's prior finding that competitive LECs are impaired without unbundled access to the HPFL because purchasing a stand-alone loop would be too costly for carriers

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760 *USTA*, 290 F.3d at 429 (citing *Iowa Utils. Bd.*, 525 U.S. at 386-88). The D.C. Circuit also cautioned the Commission against imposing the costs of unbundling if doing so would not bring on a significant enhancement of competition. *Id.*

761 *Id.* at 429.

762 *Id.* at 427, 429.

763 *Line Sharing Order*, 14 FCC Rcd at 20932-35, paras. 39-43.

764 *Id.* at 20936, para. 48.

765 *Id.* at 20938, para. 53.

seeking to offer a broadband service. Whereas in the *Line Sharing Order*, the focus was only on the revenues derived from an individual service, our focus is on the all potential revenues derived from using the full functionality of the loop. As stated above, the impairment standard we adopt today considers whether *all* potential revenues from entering a market exceed the costs of entry, taking into account consideration of any advantages a new entrant may have.[766] Thus, in the instant case, we take into the account the fact that there are a number of services that can be provided over the stand-alone loop, including voice, voice over xDSL (i.e., VoDSL), data, and video services. In so doing, we conclude that the increased operational and economic costs of a stand-alone loop (including costs associated with the development of marketing, billing, and customer care infrastructure) are offset by the increased revenue opportunities afforded by the whole loop.

259. Moreover, we can no longer find that competitive LECs are unable to obtain the HFPL from other competitive LECs through line splitting. For example, the largest non-incumbent LEC provider of xDSL service, Covad, recently announced plans to offer ADSL service to "more of AT&T's 50 million consumer customers" through line splitting.[767] In addition, in the 1999 *Line Sharing Order*, the Commission relied on the marketplace conditions present at the time to

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[766] *See supra* para. 84.

[767] *See* Covad Communications, *AT&T and Covad Extend Residential DSL Relationship*, Press Release (dated Jan. 6, 2003) <http://www.covad.com/companyinfo/pressroom/pr_2003/010603_press.shtml> (stating that this agreement will enable more of AT&T's 50 million consumer customers to obtain xDSL service through Covad's network, which itself covers more than 40 million households and businesses nationwide). We thus do not find credible Covad's argument that the Commission's previous finding, that there are no third-party alternatives to the incumbent LEC's HFPL, remains valid. *See* Covad Comments at 42.

justify, at least partially, its decision to unbundle the HFPL. Specifically, the Commission noted the nascency of local competition and the lack of viable alternatives for a provider of broadband services.[768] Although we recognize that these circumstances have not been completely reversed, significant strides have been made by competitors in the local market. Competitors now serve more than three times the number of voice customers that were served in 1999.[769] Moreover, the conditions for further competitive entry are much better established as evidenced by the Commission's approval of 43 section 271 applications, which requires the Commission to find that the local telephone market is open to competition in a particular state, since 1999.[770] Since some incumbent LECs have thus far refused to provide xDSL service to customers that obtain voice service from a competitive LEC, by necessity, any of the over 11 million voice customers served by competitive LECs who seek xDSL service would have to obtain that service from a competing carrier.[771]

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[768] *See, e.g., Line Sharing Order*, 14 FCC Rcd at 20938, 20939-40, paras. 53, 56.

[769] *See Local Telephone Competition December 2002 Report* at Table 2 (comparing 3.4 million mass market customers in December 1999 with over 11 million mass market customers in June 2002). We also note that several voice providers, AT&T and WorldCom, subsequently purchased the assets of two former data LECs: NorthPoint and Rhythms NetConnections, respectively. *See, e.g.*, WorldCom Reply, Reply Declaration of Ian Graham (WorldCom Graham Reply Decl.) at para. 1.

[770] We note that in 1999, only one state, New York, had been granted section 271 authority. Since then, the Commission has approved section 271 applications in 42 other states (including the District of Columbia).

[771] *See Local Telephone Competition December 2002 Report* at Table 2. As noted by WorldCom, the need for line splitting is likely to grow as penetration by competitive voice providers increases. WorldCom Comments at 104.

260. We find that allowing competitive LECs unbundled access to the whole loop and to line splitting but not requiring the HFPL to be separately unbundled creates better competitive incentives than the alternatives. This is largely due to the difficulties in pricing the HFPL as a separate element. As we explained in the *Line Sharing Order*, the same physical loop is used for multiple services, and there is no single correct method for allocating loop costs among these services and the HFPL.[772] Pricing the HFPL thus creates a dilemma: either incumbent LECs are allowed to over-recover their loop costs by fully charging for both the HFPL and the low frequency portion of the loop, or competitive LECs are allowed to purchase the HFPL at a price of roughly zero.[773] Following our pricing rules, most states did the latter.[774] The result is that competitive LECs purchasing only the HFPL have an irrational cost advantage over competitive LECs purchasing the whole loop and over the incumbent LECs. In contrast, allowing competitive LECs unbundled access to the whole loop and to line splitting but not requiring the HFPL to be separately unbundled puts competitive LECs using only the HFPL in a more fair competitive position with respect to other competitive LECs and to the incumbent LECs. Each carrier faces the same loop costs and, it if wishes, each can partner with another carrier to provide service over the HFPL alone or the low frequency portion of the loop alone as it wishes.

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[772] *Line Sharing Order*, 14 FCC Rcd at 20975, para. 138; *see also Intercarrier Compensation NPRM*, 16 FCC Rcd at 9625, para. 39 (describing generally the difficulties associated with allocating common costs among services).

[773] *Line Sharing Order*, 14 FCC Rcd at 20975, para. 137.

[774] *See, e.g.*, Covad Dec. 27, 2002 *Ex Parte* Letter at 6 (noting that 73% of the states in which Covad does business have approved a zero rate for the HFPL). *See also CALLS Order*, 15 FCC Rcd at 13001, para. 98 (stating that, as of 2000, the Commission was unaware of any incumbent LEC allocating any loop costs to ADSL service).

261. We expressly reject the Commission's earlier finding that "line sharing will level the competitive playing field . . . ."[775] In fact, rules requiring line sharing may skew competitive LECs' incentives toward providing a broadband-only service to mass market consumers, rather than a voice-only service or, perhaps more importantly, a bundled voice and xDSL service offering. In addition, readopting our line sharing rules on a permanent basis would likely discourage innovative arrangements between voice and data competitive LECs and greater product differentiation between the incumbent LECs' and the competitive LECs' offerings. We find that such results would run counter to the statute's express goal of encouraging competition and innovation in all telecommunications markets.

262. Furthermore, in vacating the Commission's line sharing rules, the D.C. Circuit found that the Commission failed to consider the relevance of broadband competition coming from cable and, to a lesser extent, satellite providers.[776] The Commission staff's *High Speed Services December 2002 Report* shows that, nationally, cable modem service is the most widely used means by which the mass market obtains broadband service.[777] Indeed, two reports show that the gap between cable modem and ADSL subscribership continues to widen.[778]

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[775] *Line Sharing Order*, 14 FCC Rcd at 20930-31, para. 35.

[776] *USTA*, 290 F.3d at 428.

[777] *See High Speed Services December 2002 Report* at Table 5 (noting that cable modem service is provided over nine million lines, which is approximately 57% of all high-speed lines).

[778] *Compare* Industry Analysis and Technology Division, Wireline Competition Bureau, *High Speed Services July 2002 Report* at Table 5 (noting that the difference in number of high-speed lines served by cable modem service and ADSL service was 3.11 million as of December 2001) *with High Speed Services December 2002 Report* at Table 5 (noting that the difference in number of high-speed lines served by cable modem service and ADSL service was 4.07 million as of June 2002).

263. As discussed earlier, the Commission also has acknowledged the important broadband potential of other platforms and technologies, such as third generation wireless, satellite, and power lines.[779] Although cable modem's lead in broadband deployment is not dispositive in our impairment analysis,[780] the fact that broadband service is actually available through another network platform and may potentially be available through additional platforms helps alleviate any concern that competition in the broadband market may be heavily dependent upon unbundled access to the HFPL. Indeed, as noted by Allegiance, the existence of some measure of intermodal alternatives in the residential market lessens the benefits of unbundling.[781] Given that the whole loop is available, on an unbundled basis, we find that the costs of unbundling the HFPL outweigh the benefits when taking into account the skewed entry incentives discussed above. Moreover, we anticipate that the Commission's decisions in this Order and other proceedings will encourage the deployment of new technologies providing the mass market with even more broadband options.[782]

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[779] *See, e.g., Third Section 706 Report 2002*, 17 FCC Rcd at 2877-81, paras. 79-88.

[780] *See supra* Part V.B. (discussing intermodal alternatives in the general impairment Part of this Order).

[781] *See* Letter from Thomas Jones, Counsel for Allegiance, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Feb. 13, 2003) (Allegiance Feb. 13, 2003 *Ex Parte* Letter).

[782] Chairman Powell claims that our decision on line sharing contains some compromises, which, he contends, are improper. *Chairman Powell Statement* at 15-16. There is nothing improper about our decision. The Commission is composed of five people, each of whom sometimes has a different view of the right answer. When that occurs, it is essential to work together to find common ground, or else the agency cannot function. Compromise is inherently part of that process, and "good public policy often must be[] a balanced compromise of conflicting values and judgments." Separate Statement of Commissioner Michael K. Powell,

264. *Line Sharing Transition.* We recognize that a number of competitive LECs have relied on the existence of line sharing to provide broadband service to end users since the adoption of the *Line Sharing Order.* These carriers have built internal systems to order the HFPL from incumbent LECs and have designed products that depend on line sharing as an input. In order to ensure that these carriers have adequate time to implement new internal processes and procedures, design new product offerings, and negotiate new arrangements with incumbent LECs to replace line sharing, we adopt a three-year transition period for new line sharing

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Review of the Commission's Regulations Governing Attribution of Broadcast and Cable/MDS Interests, Report and Order, 14 FCC Rcd 12559, 12669 (1999); *see also* Separate Statement of Commissioner Michael K. Powell, *1998 Biennial Regulatory Review Spectrum Aggregation Limits for Wireless Telecommunications Carriers*, Report and Order, 15 FCC Rcd. 9219, 9296-97 (1999) ("Well, this time we are not doing much to modify or eliminate the rule and I do not agree with all of the findings and competitive analysis in the item.... Most importantly, in the spirit of compromise, the item recognizes three things that I find somewhat comforting in my decision today to support the item."). In fact, "compromise . . . is within the Commission's purview," *Interstate Natural Gas Ass'n v. FERC*, 285 F.3d 18, 36 (D.C. Cir. 2002), so long as an "agency articulate[s] a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Ass'n of American Railroads v. Surface Transp. Bd.*, 161 F.3d 58, 66 (D.C. Cir. 1998) (quoting *Michigan Consol. Gas Co. v. FERC*, 883 F.2d 117, 120-21 (D.C. Cir. 1989)) (quotation marks omitted). Here, we have offered a detailed justification of our actions. Specifically, as discussed, the Commission's previous decision to require line sharing was unequivocally vacated by the D.C. Circuit; the Commission's earlier assessment of costs and revenues from the local loop failed to consider all potential revenues; competitive LECs are now able to obtain the HFPL from other competitive LECs through line splitting; the Commission's previous line sharing rule created warped incentives, because there is no single correct method for allocating the costs attributable to the HFPL; and cable television providers, who are not subject to line sharing obligations, serve a majority of the current residential broadband customers, while incumbent LECs have only a fraction of this market share.

arrangements of requesting carriers.[783] In addition, until the next biennial review, a proceeding that will commence in

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[783] In response to the transition mechanism for line sharing voted on February 20th, the dissent raised some concerns regarding aspects of the transition for existing customers that had not been previously discussed. Separate Statement of Commissioner Kathleen Q. Abernathy, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, CC Docket Nos. 01-338, 96-98, 98-147, FCC 03-36 (rel. Feb. 20, 2003) ("I am also troubled by the majority's decision to establish a three-year transition period for the elimination of line sharing. I believe that the majority should own up to the fact that, by cutting off data LECs' access to line sharing, it has shut down residential broadband competition over the copper loop. Any talk of a glide path is fanciful, because, in all likelihood, there will regrettably be no providers left to participate in a transition three years from now."); Separate Statement of Chairman Michael K. Powell, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, CC Docket Nos. 01-338, 96-98, 98-147, FCC 03-36 (rel. Feb. 20, 2003) ("By some estimates, 40% of DSL providers use line shared inputs. The decision to kill off this element and replace it with a transition of higher wholesale prices will lead quite quickly to higher retail prices for broadband consumers . . ."). As the Commission has concluded in other contexts, "some of those concerns were well thought out and prompted the majority to rethink its position and further explain its rationale. Those steps improved this Order—and in turn resulted in a higher quality product for the American people. At the end of the day that should be the goal of all the Commissioners." Joint Statement of Chairman Michael Powell and Commissioner Kathleen Q. Abernathy, *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range*, ET Docket No. 98-206, RM-9147, RM-9245, Memorandum Opinion and Order and Second Report and Order, 17 FCC Rcd 9614, 9807 (2002) (*Joint Statement of Chairman Powell and Commissioner Abernathy on Northpoint*). Those concerns prompted the majority to address the status of existing customers and further explain its rationale. The interim grandfathering rule we adopted improved this Order, respon ds to the dissenters' call for the need to strengthen the glide path we set forth on February 20th, and further ameliorates the immediate impact of our decision on retail prices for broadband consumers. In

2004, we grandfather all existing line sharing arrangements unless the respective competitive LEC, or its successor or assign, discontinues providing xDSL service to that particular end-user customer. During this interim period, we direct incumbent LECs to charge competitive LECs the same price for access to the HFPL for those grandfathered customers that they charged prior to the effective date of this Order. Consistent with our stated policy goal of preventing harm to consumers caused by a discontinuance of service, we conclude that establishing a grandfathering rule is necessary to prevent consumers who currently rely on line sharing from losing their broadband service.[784] This interim grandfathering rule will help alleviate the impact of such a significant rule change on end-user customers.[785] Consistent with our

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addition, immediate change of existing service may be unnecessary in light of frequent broadband customer churn and our effort to reevaluate the extent that grandfathered customers remain prior to the end of the three-year transition in the context of our next biennial review. While ideally we would engage in the dialogue at an earlier stage, "continuous improvement of our items is the right thing to do." *See id*; *see also infra* note 1396.

[784] *See e.spire Application to Discontinue Domestic and International Telecommunications Services*, Order, Comp. File No. 592, 17 FCC Rcd 14785, para. 1 (WCB 2002) (denying application to discontinue telecommunications service because such action would disrupt service to consumers); *Rhythms Link Inc. Section 63.71 Application to Discontinue Domestic Telecommunications Services*, Order, NSD File No. W-P-D-517, 16 FCC Rcd 17024, 17025, paras. 4, 13 (CCB 2001) (granting application to discontinue telecommunications service after determining that Rhythms gave proper notice to its customers, which resulted in most affected customers being migrated to other carriers without a service interruption).

[785] We note that both Qwest and Verizon suggested some form of grandfathering line sharing customers. For example, Qwest proposed grandfathering existing locations for line sharing. Qwest Comments at 44-45. Although Qwest's proposal was premised on the D.C. Circuit upholding the Commission's line sharing rules, we find that a modification of this proposal to address current marketplace conditions is appropriate. *Id.* at 45 n.115. Namely, instead of permitting competitive

findings set forth above in Part V.E, if a decision taken pursuant to state law after this Order becomes effective were to require line sharing obligations, any party that believes such decision is inconsistent with the limits of section 251(d)(3)(B) and (C) may seek a declaratory ruling from this Commission.[786]

265. The three-year transition period for new line sharing arrangements will work as follows. During the first year, which begins on the effective date of this Order, competitive LECs may continue to obtain new line sharing customers through the use of the HFPL at 25 percent of the state-approved recurring rates or the agreed-upon recurring rates in existing interconnection agreements for stand-alone copper loops for that particular location.[787] During the second year, the recurring charge for such access for those customers will

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LECs to continue obtaining unbundled access to the HFPL at all current locations, which presumably would allow requesting carriers to add new subscribers served out of those locations, we limit this proposal to existing customers only. Even after issuance of the *USTA* decision, Verizon suggested grandfathering existing competitive LEC xDSL customers served over line shared loops. *See* Letter from William P. Barr, Verizon, to Michael Powell, Chairman, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 5 (filed Jan. 17, 2003) (Verizon Jan. 17, 2003 *Ex Parte* Letter) (noting that "[a]s a purely transitional measure . . . existing [line sharing] customers could be grandfathered for some period of time."). As a practical matter, because of the churn rates associated with this industry, we find that our grandfathering requirement described above is not without end.

[786] *See supra* Part V.E for our discussion of the role of the states.

[787] We determine that it is appropriate to permit requesting carriers to continue obtaining new customers during the first year of the transition. This augmented customer base will enable requesting carriers, especially data LECs, to continue their day-to-day operations while modifying their business plans and working to preserve access arrangements with incumbent LECs. *See* Letter From Jason D. Oxman, Vice President and Assistant General Counsel, Covad, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (Covad Feb. 24, 2003 *Ex Parte* Letter).

increase to 50 percent of the state-approved recurring rate or the agreed-upon recurring rate in existing interconnection agreements for a stand-alone copper loop for that particular location. Finally, in the last year of the transition period, the competitive LECs' recurring charge for access to the HFPL for those customers obtained during the first year after release of this Order will increase to 75 percent of the state-approved recurring rate or the agreed-upon recurring rate for a stand-alone loop for that location.[788] After the transition period, any new customer must be served through a line splitting arrangement, through use of the stand-alone copper loop, or through an arrangement that a competitive LEC has negotiated with the incumbent LEC to replace line sharing.[789] We strongly encourage the parties to commence negotiations as soon as possible so that a long-term arrangement is reached and reliance on the shorter-term default mechanism that we describe above is unnecessary.

266. The purpose of this transition is to minimize disruption to the customers that obtain xDSL service through line shared loops and to provide a reasonable glide path to competitive LECs currently availing themselves of this UNE. The Commission has established transition periods of this length in the past. For example, in establishing a three-year interim intercarrier compensation regime for ISP-bound traffic, the Commission stated that it would be "prudent to avoid a 'flash cut' to a new compensation regime that would upset the legitimate business expectations of carriers and their

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[788] After this third year, competitive LECs will not have unbundled access to the HFPL, pursuant to section 251(c)(3), to provide those customers obtained after the Order became effective xDSL service over line shared loops. That is, after this third year, the recurring charge for the HFPL increases to 100% of the recurring charge for a stand-alone loop.

[789] By new customers, we mean any customer obtained during the three-year transition period or after the three-year transition period. New customers do not include, however, those line sharing customers who have been grandfathered, as described above in para. 264.

customers."[790] We find that a similar approach is required here. It is entirely appropriate to fashion a transition period of sufficient length to enable competitive LECs to move their customers to alternative arrangements and modify their business practices and operations going forward.[791]

267. As one commenter noted in describing the Commission's authority to establish interim rates for unbundled local circuit switching, in combination with other elements, inherent in the Commission's authority to establish transitional rules is its authority to establish transitional rates.[792] Section 201(b) gives the Commission broad authority to adopt the transition mechanism set forth in this Part and nothing in that provision limits our authority with respect to rates. Indeed, we agree with those commenters that contend that a transitional rate is often the most effective means by which to implement a "glide path from one regulatory/pricing regime to another."[793] The incremental approach we adopt here will encourage requesting carriers either to migrate their customers to the whole loop in an orderly manner or to reach agreement, if it is desired, with the incumbent LEC to continue access to the HFPL on different terms and conditions.

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[790] *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Intercarrier Compensation for ISP-Bound Traffic*, CC Docket Nos. 96-98, 99-68, Order on Remand and Report and Order, 16 FCC Rcd 9151, 9186-87, paras. 77-78 (2001) (*ISP Remand Order*).

[791] *See, e.g.*, Letter from Susan Guyer and Michael Glover, Verizon, to William F. Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 4 (filed Jan. 10, 2003).

[792] *See* Letter from Gary L. Phillips, Counsel for SBC, to Michael K. Powell, Chairman, FCC, CC Docket No. 01-338 at 2 (filed Dec. 19, 2002) (SBC Dec. 19, 2002 *Ex Parte* Letter) (citing the Commission's *ISP Remand Order*).

[793] *Id.*

268. In order to implement the line sharing transition plan described above, we find that it is necessary to reinstate certain rules concerning the HFPL.[794] Specifically, we define the HFPL as the frequency range above the voiceband on a copper loop facility that is being used to carry analog circuit-switched voiceband transmissions.[795] The features, functions, and capabilities of the HFPL network element are those that establish a complete transmission path on the frequency range above the one used to carry analog circuit-switched voice transmissions between the incumbent LEC's distribution frame (or its equivalent) in its central office and the demarcation point at the customer's premises, and includes any inside wire owned by the incumbent LEC. Incumbent LECs must condition loops to enable requesting carriers to access the HFPL.[796] Finally, incumbent LECs must provide physical loop test access points on a nondiscriminatory basis

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[794] To be clear, although the D.C. Circuit referred broadly to vacating the *Line Sharing Order*, it did not address the Commission's spectrum management rules or that portion of the Order in its decision. Consequently, the Commission finds that these rules were unaffected by the *USTA* decision and therefore do not need to be readopted because they remain in effect. *See, e.g.*, 47 C.F.R. §§ 51.230-.233. Finally, we find no reason to modify these rules in this Order.

[795] 47 C.F.R. § 51.319(h)(1); *Line Sharing Order*, 14 FCC Rcd at 20926-27, para. 26.

[796] *Line Sharing Order*, 14 FCC Rcd at 20952-54, paras. 83-87; 47 C.F.R. § 51.319(h)(5). Included among the incumbent LECs' conditioning requirements that we reinstate is the requirement that, after determining that conditioning a loop will significantly degrade the voiceband service offered by the incumbent LEC on that loop, the incumbent LEC must either locate another loop and migrate its voice service to that loop while providing the requesting carrier with access to the HFPL, or demonstrate to the relevant state commission that the loop cannot be conditioned without significantly degrading the voiceband service and no alternative loop exists to which the customer's voiceband service can be moved to enable line sharing. *See* 47 C.F.R. § 51.319(h)(5)(ii); *see also infra* Part VII.D (discussing modifications to the existing network).

for the purposes of loop testing, maintenance, and repair activities.[797]

269. In addition, incumbent LECs are only required to provide access to the HFPL if the incumbent LEC is providing, and continues to provide, analog circuit-switched voiceband services on the particular loop over which the requesting carriers seeks access to provide ADSL service.[798] In the event that the customer ceases purchasing voice service from the incumbent LEC, either the new voice provider or the xDSL provider, or both, must purchase the full stand-alone loop to continue providing xDSL service. Finally, as the Commission found before, incumbent LECs may also maintain control over the loop and splitter equipment and functions.[799]

270. *Low Frequency Portion of the Loop.* We disagree with CompTel that we should separately unbundle the low frequency portion of the loop, which is the portion of the copper local loop used to transmit voice signals.[800] We conclude that unbundling the low frequency portion of the loop is not necessary to address the impairment faced by requesting carriers because we continue (through our line splitting rules) to permit a narrowband service-only competitive LEC to take full advantage of an unbundled loop's capabilities by partnering with a second competitive LEC that will offer xDSL service.

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797 *See Line Sharing Order*, 14 FCC Rcd at 20964-67, paras. 111-18; 47 C.F.R. § 51.319(h)(7).

798 *Line Sharing Order*, 14 FCC Rcd at 20947, para. 72; 47 C.F.R. § 51.319(h)(3). Finally, we also readopt our finding contained in the *Line Sharing Order* that if an incumbent LEC disconnects a customer's voice service in accordance with applicable law, then the competitive LEC must purchase the entire loop to continue providing that customer with xDSL service. *Line Sharing Order*, 14 FCC Rcd at 20947-48, para. 73.

799 *Id.* at 20949-50, paras. 76-79.

800 CompTel Comments at 43-45.

271. *Retirement of Copper Loops and Copper Subloops.* As we note below in our discussion of FTTH loops, we decline to prohibit incumbent LECs from retiring copper loops or copper subloops that they have replaced with fiber. Instead, we reiterate that our section 251(c)(5) network modification disclosure requirements (with the minor modifications also noted below in that same discussion) apply to the retirement of copper loops and copper subloops.[801] In addition, any state requirements that currently apply to an incumbent LEC's copper loop or copper subloop retirement practices will continue to apply.

(b) Next-Generation Networks

272. Although we require the unbundling of legacy technology used over hybrid loops, we decline to attach unbundling requirements to the next-generation network capabilities of fiber-based local loops, *i.e.*, those loops that make use of fiber optic cables and electronic or optical equipment capable of supporting truly broadband transmission capabilities based on the analysis described earlier in this subsection. We expect that this decision to refrain from unbundling incumbent LEC next-generation networks—which is based on our evaluation of an extensive record developed over more than two years—will stimulate facilities-based deployment in two ways. First, with the certainty that their fiber optic and packet-based networks will remain free of unbundling requirements, incumbent LECs will have the opportunity to expand their deployment of these networks, enter new lines of business, and reap the rewards of delivering broadband services to the mass market. Thus, we conclude that relieving incumbent LECs from unbundling requirements for these networks will promote investment in, and deployment of, next-generation networks. Second, with the knowledge that incumbent LEC next-generation networks

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[801] *See* 47 U.S.C. § 251(c)(5) (specifying network disclosure requirements); 47 C.F.R. §§ 51.324-.335.

will not be available on an unbundled basis, competitive LECs will need to continue to seek innovative network access options to serve end users and to fully compete against incumbent LECs in the mass market. The end result is that consumers will benefit from this race to build next generation networks and the increased competition in the delivery of broadband services.

(i) FTTH Loops

273. We conclude that requesting carriers are not impaired without access to FTTH loops,[802] although we find that the level of impairment varies to some degree depending on whether such loop is a new loop or a replacement of a pre-existing copper loop.[803] With a limited exception for narrowband services, our conclusion applies to FTTH loops deployed by incumbent LECs in both new construction and overbuild situations. Only in fiber loop overbuild situations where the incumbent LEC elects to retire existing copper loops must the incumbent LEC offer unbundled access to those fiber loops, and in such cases the fiber loops must be unbundled for narrowband services only. Incumbent LECs

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[802] By "FTTH loop," we mean a local loop consisting entirely of fiber optic cable (and the attached electronics), whether lit or dark fiber, that connects a customer's premises with a wire center (*i.e.*, from the demarcation point at the customer's premises to the central office). *See* Corning Nov. 20, 2002 *Ex Parte* Letter at 2 (submitting proposed definition of FTTH loop).

[803] Alcatel Comments at 15-16; Corning Comments at 22-26 (arguing that no impairment exists for FTTH loops); Corning Nov. 26, 2002 *Ex Parte* Letter, Attach. 1 at 17-21, 78-89, Attach. 2 at 7-10; HTBC Comments at 40-41. We therefore disagree with those parties who argue we should require unbundling of FTTH loops. *See* ALTS *et al.* Comments at 82 (contending that the Commission should require incumbent LECs to provide unbundled access to "broadband fiber"); CompTel Comments at 40-42; Covad Comments at 54-58 (arguing that the Commission should unbundle fiber loops).

do not have to offer unbundled access to newly deployed or "greenfield" fiber loops.

274. FTTH loop deployment is still in its infancy. Corning notes, for example, that only 47 communities throughout the nation currently enjoy widespread FTTH deployment.[804] The record demonstrates that mass market FTTH loops are used almost entirely for providing broadband services (or broadband in conjunction with narrowband services) at this time, and that carriers are not deploying such loops to provide narrowband services alone.[805] The record further indicates that FTTH loops display several economic and operational entry barriers in common with copper loops—that is, the costs of FTTH loops are both fixed and sunk, and deployment is expensive.[806] The record also shows, however, that the potential rewards from FTTH deployment are significant. Corning notes, for example, that carriers will be able to earn a substantially greater return on their FTTH investment by offering voice, data, video, and other services.[807] Thus, we find that the substantial revenue opportunities posed by FTTH

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[804] Letter from Timothy Regan, Senior Vice President, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket 01-338 at 5 (filed Dec. 20, 2002) (Corning Dec. 20, 2002 FTTH *Ex Parte* Letter).

[805] Deployment of FTTH loop plant enables a carrier to provide both narrowband voice and broadband services—in essence, voice telephony becomes an application provided over an integrated network. *See* Corning Comments at 2 (asserting that FTTH allows carriers to provide narrowband voice service, full motion video, and high speed data transfers simultaneously), 16-18; FTTH Council Comments at 1; HTBC Comments at 6-8, 14-17.

[806] *See* Corning Nov. 20, 2002 *Ex Parte* Letter, Attach. at 7-10 (estimating costs involved with deploying FTTH loops).

[807] Corning Nov. 26, 2002 *Ex Parte* Letter, Attach. at 33. Corning indicates that, through FTTH deployment, carriers could reasonably earn a return of $33 per subscriber, compared to $18 for ADSL deployment and $21 for cable modem service. *Id.*

deployment help ameliorate many of the entry barriers presented by the costs and scale economies.

275. With respect to new FTTH deployments (*i.e.*, so-called "greenfield" construction projects), we note that the entry barriers appear to be largely the same for both incumbent and competitive LECs—that is, both incumbent and competitive carriers must negotiate rights-of-way, respond to bid requests for new housing developments, obtain fiber optic cabling and other materials, develop deployment plans, and implement construction programs.[808] Indeed, the record indicates that competitive LECs are currently leading the overall deployment of FTTH loops after having constructed some two-thirds or more of the FTTH loops throughout the nation.[809] Competitive LECs' active

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[808] Some parties contend that competitive LECs actually have a competitive advantage in deploying FTTH loops because their labor costs are generally lower. *See* Corning Comments at 4; Corning Jan. 29, 2003 *Ex Parte* Letter at 19; Corning Nov. 20, 2002 *Ex Parte* Letter, Attach. 2 at 10. In addition, some parties argue that FTTH loop costs are declining because of the cost of the necessary attached electronics is dropping. Corning Comments at 13, n. 33. BellSouth notes that competitive LECs have "a mandatory right to access the rights-of-way of [incumbent LECs] and presumptive rights to access other utility rights-of-way." BellSouth Comments at 68-69.

[809] Corning Comments at 5; HTBC Comments at 42 (asserting that competitive LECs and incumbent LECs are on equal footing for deploying FTTH loops); Corning Reply at 12; Letter from Jeffrey S. Linder, Counsel for Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, Attach 1 at 2 (filed Feb. 6, 2003) (Corning Feb. 6, 2003 *Ex Parte* Letter); Letter from Larry Aiello, President and Chief Executive Officer, Corning Cable Systems, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 (filed Feb. 3, 2003) (noting that competitive LECs have deployed 68% of the existing FTTH deployment to date) (Corning Feb. 3, 2003 *Ex Parte* Letter); Letter from Derek R. Khlopin, HTBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 4 (filed Jan. 14, 2003) (arguing that competitive LECs are not impaired without access to FTTH loops) (HTBC Jan. 14, 2003 *Ex Parte* Letter); Letter from Timothy J. Regan, Senior Vice President, Corning, to Marlene H. Dortch,

participation in deploying FTTH loops demonstrates that carriers are not impaired if we refrain from unbundling these loops.[810] Thus, we conclude that incumbent LECs do not have a first-mover advantage that would compound any barriers to entry in this situation. In addition, we conclude that incumbent LECs have no advantages concerning the sunk costs of greenfield FTTH loops—both incumbent LECs and competitive LECs are faced with the same issue in their deployment of such loops. As a result of our analysis, we do not require incumbent LECs to provide unbundled access to new FTTH loops for either narrowband or broadband services.[811]

276. We recognize that one FTTH deployment scenario, *i.e.*, overbuild deployment in which an incumbent LEC constructs fiber transmission facilities parallel to or in replacement of its existing copper plant, merits slightly different treatment than greenfield FTTH deployments. Although the record indicates that this scenario is largely theoretical, at least today, the evidence suggests that

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Secretary, FCC, CC Docket No. 01-338 , Attach. 2 at 7 (filed Jan. 29, 2003) (Corning Jan. 29, 2003 FTTH *Ex Parte* Letter). Corning estimates that competitive LECs have deployed FTTH loops to 44,890 homes, that small incumbent LECs have deployed FTTH loops to 3,600 homes, that the BOCs have deployed FTTH loops to some 400 homes, and that municipalities have deployed FTTH loops to about 18,100 homes. Corning Jan. 29, 2003 FTTH *Ex Parte* Letter, Attach. at 7.

[810] Corning Jan. 29, 2003 FTTH *Ex Parte* Letter at 6-7.

[811] By FTTH loop, we mean a loop consisting entirely of fiber optic cable between the main distribution frame (or its equivalent) and the demarcation point at the customer's premises. We recognize that other "fiber-in-the-loop" network architectures exist, such as "fiber to the curb" (FTTC), "fiber to the node" (FTTN), and "fiber to the building" (FTTB). *See* Telcordia, Inc., NOTES ON FIBER-IN-THE-LOOP (FITL), SR-Notes-Series-10, Issue 1 at 5-1 to 6-17 (Jul. 2001). Our definition of FTTH loops excludes such intermediate fiber deployment architectures. For purposes of our unbundling rules, we consider any loop consisting of fiber optic and copper cable to be a hybrid loop.

impairment would not exist for two reasons. First, as with greenfield deployments, competitive and incumbent LECs largely face the same obstacles in deploying overbuild FTTH loops, although incumbent LECs still enjoy an established customer base. Both competitive LECs and incumbent LECs must obtain materials, hire the necessary labor force, and construct the fiber transmission facilities. Second, we note that the revenue opportunities associated with deploying any type of FTTH loop are far greater than for services provided over copper loops. Besides providing narrowband services like voice, fax, and dial-up Internet access, competitive LECs could also deploy a wide-array of video and other broadband applications over such FTTH loops.[812] In fact, broadband platforms enabled by the deployment of FTTH loops will likely enable a variety of new services and applications, competing directly with the market-leading cable broadband offerings and the broadband offerings potentially provided by other technological platforms, such as satellite and wireless, thereby weakening the case for unbundling. Thus, the potential rewards for deploying overbuild FTTH loops are distinctly greater than those associated with deploying copper loops and thus present a different balance when weighed against the barriers to entry.

277. We agree with Corning and Verizon, however, that in a FTTH overbuild situation we must ensure continued access to an unbundled transmission path suitable for providing narrowband services to customers served by FTTH loops.[813]

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[812] *See* Corning Comments at 2; HTBC Comments at 15-16 (describing services that can be offered over FTTH loops); *CSMG Study* at 10 (describing key revenue drivers for FTTH loops), 18-24 (comparing revenue opportunities for xDSL-based networks and FTTH networks); Corning Nov. 26, 2002 *Ex Parte* Letter at 28.

[813] Letter from Timothy J. Regan, Senior Vice President, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 2 (filed Feb. 5, 2003) (Corning Feb. 5, 2003 FTTH Overbuild *Ex Parte* Letter); Verizon Jan. 17, 2003 *Ex Parte* Letter at 7 (asserting that incumbent LECs

The record indicates that deployment of overbuild FTTH loops could act as an additional obstacle to competitive LECs seeking to provide certain services to the mass market. By its nature, an overbuild FTTH deployment enables an incumbent LEC to replace and ultimately deny access to the already-existing copper loops that competitive LECs were using to serve mass market customers. In this regard, incumbent LECs potentially have an entry barrier within their sole control (*i.e.*, the decision to replace pre-existing copper loops with FTTH). In order to ensure continued narrowband access in this situation, incumbent LECs have the option to either (1) keep the existing copper loop connected to a particular customer after deploying FTTH;[814] or (2) in situations where the incumbent LEC elects to retire the copper loop, it must provide unbundled access to a 64 kbps transmission path over its FTTH loop.[815] Under the first option, we do not require

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should only have to provide unbundled access to a 64 kbps transmission path over their fiber transmission facilities).

[814] Corning Feb. 5, 2003 FTTH Overbuild *Ex Parte* Letter at 2 (proposing policy recommendations related to overbuild FTTH); Corning Feb. 6, 2003 *Ex Parte* Letter at 5; Letter from Timothy J. Regan, Senior Vice President, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 2 (filed Feb. 13, 2003) (proposing overbuild FTTH policies) (Corning Feb. 13, 2003 *Ex Parte* Letter); Letter from Leonard G. Ray, Government Relations Committee Chairman, FTTH Council, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 2-3 (filed Feb. 13, 2003).

[815] *See* Letter from Timothy J. Regan, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, Attach. 3 at 1 (providing key definitions); Verizon Jan. 17, 2003 *Ex Parte* Letter at 7 (asserting that incumbent LECs should only have to provide unbundled access to a 64 kbps transmission path over their fiber transmission facilities). A key part of the HTBC proposal is ensuring that competitive LECs maintain access to "all existing non-packet loop capabilities over hybrid fiber/copper facilities." Letter from Derek. R. Khlopin, HTBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, Attach. 1 at 1 (filed Jan. 24, 2003) (HTBC Jan. 24, 2003 Khlopin *Ex Parte* Letter). As an example,

incumbent LECs to incur relief and rehabilitation costs for that loop unless a competitive LEC requests unbundled access to it and such loop is placed back into service. We conclude that these measures counteract any obstacles competitive LECs face in overbuild FTTH situations much like other provisions of the Act offset certain entry barriers. We note that this is a very limited requirement intended only to ensure continued access to a local loop suitable for providing narrowband services to the mass market in situations where an incumbent LEC has deployed overbuild FTTH and elected to retire the pre-existing copper loops.

278. As noted above, section 706 informs our policymaking as we determine what unbundling rules, if any, should apply to FTTH loops.[816] All parties agree that FTTH loops meet the definition of advanced telecommunications capability,[817] and so we determine that promoting the deployment of FTTH loops is particularly important in light of our section 706 mandate. Simply put, delivering broadband service is impossible without a transmission path to the customer's premises that supports broadband capabilities. While copper loops enable carriers to deliver xDSL-based broadband services, FTTH loops significantly enhance the broadband capabilities a carrier can deliver to consumers. Thus, we determine that, particularly in light of a competitive landscape in which competitive LECs are leading the deployment of FTTH, removing incumbent LEC unbundling obligations on FTTH loops will promote their

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HTBC states that "DS-1s provided over TDM facilities would remain subject to a Section 251 impairment analysis." *Id.*

[816] Section 706(a) of the Telecommunications Act of 1996. *See* Corning Comments at 10-11 (arguing that the Commission should consider section 706 in crafting its unbundling framework); HTBC Comments at 43-44.

[817] *See, e.g.*, Corning Comments at 2, 11-13; HTBC Comments at 5.

deployment of the network infrastructure necessary to provide broadband services to the mass market.[818]

279. We further agree with Corning that our FTTH policy adopted herein should not adversely affect competitive LECs for several reasons.[819] First, competitive LECs have demonstrated that they can self-deploy FTTH loops and are doing so at this time. Second, competitive LECs can continue to use resale as a means for serving mass market customers after incumbent LECs deploy FTTH loops. Finally, competitive LECs can continue to have unbundled access to existing copper facilities, to the extent such facilities are available.

280. For these reasons, we disagree with AT&T that we should further study issues surrounding the deployment of FTTH loops used to serve the mass market.[820] The record contains sufficient information concerning the current deployment of FTTH loops and the economic barriers surrounding such deployment, as well as a number of studies and projections of future FTTH deployment.[821]

281. *Retirement of Copper Loops.* We decline to impose a blanket prohibition on the ability of incumbent LECs to retire any copper loops or subloops they have replaced with FTTH loops. Several parties also propose extensive rules that would

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[818] Corning Comments at 3, 10-14; SBC Reply at 55-60; Letter from Jeffrey S. Linder, Counsel for Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, Attach. at 6 (filed Jan. 31, 2003) (estimating that unbundling relief will increase FTTH deployment by a factor of 6.2).

[819] *See* Corning Feb. 6, 2003 *Ex Parte* Letter at 5.

[820] AT&T Reply at 74 (advocating that the Commission study FTTH deployment issues further before determining what unbundling requirements, if any, apply to FTTH loops used to serve the mass market).

[821] *See* Corning Nov. 26, 2002 *Ex Parte* Letter, Attach. at 29-33 (describing revenue opportunities), 42-45 (describing competitive LEC ability to self-deploy FTTH loops); *CSMG Study* at 10-14 (providing overview of study conclusions).

require affirmative regulatory approval prior to the retirement of any copper loop facilities.[822] We find that such a requirement is not necessary at this time because our existing rules, with minor modifications, serve as adequate safeguards.[823] Pursuant to the Act and the Commission's rules, incumbent LECs must provide public notice of any network change that will affect a competing carrier's performance or ability to provide service.[824] Because the retirement of copper loop plant is a network modification that affects the ability of competitive LECs to provide service,[825] we clarify that incumbent LECs must provide notice of such retirement in accordance with our rules. Thus, incumbent LECs must disclose among other things the planned date for retiring a copper loop and a description of the reasonably foreseeable impact of the planned changes.[826] Such notifications will ensure that incumbent and competitive

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[822] Allegiance Comments at 25; California Commission Comments at 18 (proposing rule requiring incumbent LEC to maintain copper plant); Letter from Timothy J. Regan, Corning, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 9 (filed Nov. 27, 2002) (Corning Nov. 27, 2002 *Ex Parte* Letter) (arguing that incumbent LECs should have the option of retiring or selling copper plant where FTTH is deployed); HTBC Comments at 36-37 (proposing measures regarding incumbent LEC retirement of legacy copper plant); TIA Comments at 17-18 (proposing rule to prohibit incumbent LECs from retiring copper loops unless they allow access to broadband facilities); AT&T Reply at 216-19 (asserting that a home-run copper loop may be of inferior quality).

[823] *See* Verizon Jan. 17, 2003 *Ex Parte* Letter at 7 (arguing that a duty to maintain two networks would impose additional costs).

[824] 47 U.S.C. § 251(c)(5); 47 C.F.R. §§ 51.325-.335. This disclosure requirement applies to the retirement of both feeder plant and distribution plant.

[825] *See, e.g.*, Sprint Comments at 45 (arguing that a competitive LEC could be stranded after an incumbent LEC upgrades its loop plant); Supra Comments at 10-13.

[826] *See* 47 C.F.R. § 51.327.

carriers can work together to ensure the competitive LECs maintain access to loop facilities.

282. Consistent with the proposals of Corning and HTBC, we modify our network modification rules with respect to the retirement of copper loops.[827] Specifically, when a copper loop is retired and replaced with a FTTH loop, we allow parties to file objections to the incumbent LEC's notice of such retirement. Consistent with our existing network disclosure rules, such oppositions must be filed with the Commission and served on the incumbent LEC within nine business days from the release of the Commission's public notice.[828] Unless the copper retirement scenario suggests that competitors will be denied access to the loop facilities required under our rules, we will deem all such oppositions denied unless the Commission rules otherwise upon the specific facts and circumstances of the case at issue within 90 days of the Commission's public notice of the intended retirement.

283. We note that, with respect to network modifications that involve copper loop retirements, the rules we adopt herein differ in two respects from the notification rules that

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[827] Corning Feb. 6, 2003 *Ex Parte* Letter at 7 (proposing a 90-day application process before the Commission with respect to the retirement of any copper loops); Letter from Derek R. Khlopin, HTBC, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Jan. 23, 2003) (HTBC Jan. 23, 2003 *Ex Parte* Letter) (stating that HTBC's proposal would prohibit incumbent LECs "from retiring the existing copper loop absent permission from the Commission.").

[828] Objections to both short and long-term notices should be made in accordance with section 51.333(c) of the Commission's rules. Moreover, incumbent LECs may respond to such objections in accordance with section 51.333(d) of the Commission's rules. *See* 47 C.F.R. § 51.333(c)-(d).

apply to other types of network modifications.[829] First, we establish a right for parties to object to the incumbent LEC's proposed retirement of its copper loops for both short-term and long-term notifications as outlined in Part 51 of the Commission's rules. By contrast, our disclosure rules for other network modifications permit oppositions only for instances involving short-term notifications.[830] Second, we establish a mechanism to deny such objections automatically unless the Commission rules otherwise within 90 days of the Commission's public notice of the intended retirement. As a practical matter, this mechanism redefines the short-term notice rules for a subset of network modifications, *i.e.*, retirement of copper loops that are replaced by FTTH loops, and means that incumbent LECs must file their disclosures for copper loop retirements at least 91 days ~~prior~~ to their planned retirement date.

284. As a final matter, we stress that we are not preempting the ability of any state commission to evaluate an incumbent LEC's retirement of its copper loops to ensure such retirement complies with any applicable state legal or regulatory requirements. We also stress that we are not establishing independent authority based on federal law for states to review incumbent LEC copper loop retirement policies. We understand that many states have their own requirements related to discontinuance of service, and our rules do not override these requirements. We expect that the state review process, working in combination with the Commission's network disclosure rules noted above, will address the concerns noted by Corning and others regarding the potential impact of an incumbent LEC retiring its copper loops.

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[829] These modified network notification requirements apply only to the retirement of copper loops and copper subloops, but not to the retirement of copper feeder plant.

[830] *See* 47 C.F.R. § 51.333(c)-(d).

(ii) Hybrid Loops

285. Hybrid loops represent an important step towards the deployment of a fiber-based network capable of supporting a wide array of advanced telecommunications and other services. Several incumbent LECs note that they pursue their construction and network modification projects in incremental ways—first, deployment of fiber in the feeder plant and associated equipment like DLC systems (often with line cards capable of providing xDSL services), followed by fiber-to-the-curb, followed by FTTH.[831] In light of this practice, we view our task with respect to hybrid loops as determining an unbundling approach that addresses impairment, but also aligns business incentives with the explicit congressional goal of promoting the rapid deployment of advanced services.

286. In making our unbundling determination for hybrid loops, we consider both impairment and, through our section 251(d)(2) "at a minimum" authority, additional factors. As noted above, we find that competitive LECs are impaired on a national basis without unbundled access to a transmission path when seeking to provide service to the mass market. We further find that this impairment at least partially diminishes with the increasing deployment of fiber. In addition, we retain the flexibility to determine the unbundling approach that best addresses the impairment in a manner that advances other goals of the Act. In this regard, balanced against impairment, we evaluate three primary factors to determine the most appropriate unbundling requirements for hybrid loops. First, we consider the costs of unbundling, *i.e.*, whether refraining from unbundling requirements will stimulate facilities-based investment and promote the deployment of advanced telecommunications infrastructure. Second, we consider the effect of alternatives to mandating unbundled access to the hybrid loops of incumbent LECs. In particular, we consider whether unbundled access to

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831 *See* Verizon Nov. 22, 2002 *Ex Parte* Letter at 1.

subloops, spare copper loops, and the non-packetized portion of incumbent LEC hybrid loops, as well as remote terminal collocation, offer suitable alternatives to an intrusive unbundling approach. Finally, we consider the state of intermodal competition in crafting our unbundling approach. As explained further below, after balancing these three primary factors against our impairment findings, we adopt a national approach that relieves incumbent LECs of unbundling requirements for the next-generation network capabilities of their hybrid loops, while at the same time ensures requesting carriers have access to the transmission facilities they need to serve the mass market.

287. We discuss our unbundling rules for hybrid loops below. These rules vary depending upon whether a competitive LEC seeks access for the provision of broadband or narrowband services. Therefore, our discussion is separated into two parts in order to clearly reflect this important distinction.

288. *Broadband Services.* We decline to require incumbent LECs to unbundle the next-generation network, packetized capabilities of their hybrid loops to enable requesting carriers to provide broadband services to the mass market.[832] AT&T, WorldCom, Covad, and others urge the Commission to extend our unbundling requirements to the packet-based and fiber optic portions of incumbent LEC hybrid loops. We conclude, however, that applying section 251(c) unbundling obligations to these next-generation network elements would

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[832] As noted above in our description of the record evidence, incumbent LECs have deployed, and are continuing to deploy, a substantial amount of "hybrid loops," *i.e.*, local loops consisting of both copper and fiber optic cable (and associated electronics, such as DLC systems). Incumbent LECs appear to be at various stages of fiber deployment and have chosen a number of FITL architectures (*e.g.*, FTTC, FTTN) and hybrid loops. Thus, we treat such intermediate deployments of fiber as hybrid loops because they consist of both copper and fiber optic cable.

blunt the deployment of advanced telecommunications infrastructure by incumbent LECs and the incentive for competitive LECs to invest in their own facilities, in direct opposition to the express statutory goals authorized in section 706. The rules we adopt herein do not require incumbent LECs to unbundle any transmission path over a fiber transmission facility between the central office and the customer's premises (including fiber feeder plant) that is used to transmit packetized information.[833] Moreover, the rules we adopt herein do not require incumbent LECs to provide unbundled access to any electronics or other equipment used to transmit packetized information over hybrid loops, such as the xDSL-capable line cards installed in DLC systems or equipment used to provide passive optical networking (PON) capabilities to the mass market.[834]

289. Although packetized fiber capabilities will not be available as UNEs, incumbent LECs remain obligated, however, to provide unbundled access to the features, functions, and capabilities of hybrid loops that are not used to transmit packetized information. Thus, as discussed more specifically in the Enterprise Loops section, consistent with the proposals of HTBC, SBC, and others, incumbent LECs must provide unbundled access to a complete transmission

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[833] *See* Letter from Robert Holleyman, HTBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Jan. 24, 2003) (HTBC Jan. 24, 2003 *Ex Parte* Letter); Letter from Veronica O'Connell, Director, HTBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Feb. 7, 2003) (HTBC Feb. 7, 2003 *Ex Parte* Letter); HTBC Feb. 14, 2003 *Ex Parte* Letter. Because we decline to require unbundling of packet-switching equipment, we deny WorldCom's petitions for reconsideration and clarification requesting that we unbundle packet-switching equipment, DSLAMs, and other equipment used to deliver DSL service. MCI WorldCom Petition for Reconsideration, CC Docket No. 96-98 at 2-18 (filed Feb. 17, 2000) (MCI WorldCom Feb. 17, 2000 Petition for Reconsideration); MCI WorldCom Feb. 17, 2000 Petition for Clarification at 2, 13.

[834] *See* HTBC Feb. 14, 2003 *Ex Parte* Letter at 1-4.

path over their TDM networks to address the impairment we find that requesting carriers currently face.[835] This requirement ensures that competitive LECs have additional means with which to provide broadband capabilities to end users because competitive LECs can obtain DS1 and DS3 loops, including channelized DS1 or DS3 loops and multiple DS1 or DS3 loops for each customer.

290. Section 706 requires the Commission to encourage deployment of advanced telecommunications capability by using, among other things, "methods that remove barriers to infrastructure investment."[836] Unbundling access to hybrid loops in the manner adopted herein—that is, limiting the requesting carrier's access to the TDM portion of the hybrid loop and precluding unbundled access to the packet-based networks (and associated fiber transmission facilities) of incumbent LECs—promotes our section 706 goals in two ways. First, it limits access to the (in many cases) newly deployed fiber transmission facility, and thereby gives incumbent LECs an incentive to deploy fiber (and associated next-generation network equipment, such as packet switches and DLC systems) and develop new broadband offerings for

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[835] HTBC Feb. 7, 2003 *Ex Parte* Letter at 2 (advocating a requirement to unbundle "non-packet loop capabilities" only); SBC Jan. 24, 2003 *Ex Parte* Letter at 12-13 (describing proposal to ensure competitive LECs have unbundled access to TDM and non-packet capabilities of SBC's networks); Letter from Jonathan J. Boynton, Associate Director, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 5 (filed Jan. 15, 2003) (SBC Jan. 15, 2003 Broadband *Ex Parte* Letter) (explaining that competitive LECs will have continued unbundled access to "non packet fiber" feeder plant combined with copper distribution plant).

[836] Section 706(a) of the Telecommunications Act of 1996. *See* Corning Comments at 10-11 (arguing that the Commission should consider section 706 in crafting its unbundling framework); CompTel Comments at 26 (arguing that the Commission should use section 706 to expand unbundling obligations); HTBC Comments at 42-45; SBC Reply at 95-96.

mass market consumers free of any unbundling requirements.[837] Although incumbent LECs have been deploying fiber feeder plant for some time, such deployment was generally limited to the purpose of increasing network efficiency for the provision of narrowband services rather than enhancing network capabilities to deliver broadband services. In addition, fiber feeder deployment (and the broadband capabilities attendant to such deployment) is far from ubiquitous. Moreover, incumbent LECs have not widely deployed the next-generation networking equipment (*e.g.*, DLC systems with xDSL-capable line cards) needed to deliver broadband services to mass market customers served by hybrid loops.[838] Second, by prohibiting access to the packet-based networks of incumbent LECs, we expect that our rules will stimulate competitive LEC deployment of next-generation networks. Because competitive LECs will not have unbundled access to the packet-based networks of incumbent LECs, they will need to continue to seek innovative access options, including the deployment of their own facilities necessary for providing broadband services to the mass market.

291. In making our unbundling determination, we are also guided by the availability of other loop alternatives within the networks of incumbent LECs. In particular, we determine that unbundled access to incumbent LEC copper subloops adequately addresses the impairment competitive LECs face so that intrusive unbundling requirements on incumbent LEC

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[837] *See* Corning Jan. 29, 2003 *Ex Parte* Letter at 12 (estimating that FTTH deployment will reach 31% of U.S. households if no unbundling requirements apply to incumbent LECs, but only 5% of U.S. households if unbundling requirements apply); *CSMG Study* at 26-28, 30 (concluding that incumbent LECs will deploy more FTTH loops if relieved from unbundling obligations).

[838] Indeed, some incumbent LECs contend that the regulatory environment has deterred their deployment of such equipment. *See, e.g.*, SBC Reply at 96-104.

packetized fiber loops facilities is not necessary. Unbundled access to subloops also better promotes our section 706 goals than unbundling incumbent LEC packetized fiber loops. In particular, subloop access promotes competitive LEC investment in next-generation network equipment (*e.g.*, packet switches, remote DSLAMs, etc.) and transmission facilities (*e.g.*, fiber loop facilities built to points in incumbent LEC networks closer to the home). Furthermore, unbundled subloop access furthers our goal of promoting innovation because it enables competitive LECs to differentiate their product and service offerings from those of the incumbent LEC. In addition to subloop unbundling, as discussed more fully below, we require incumbent LECs to continue providing unbundled access to the TDM-based features, functions, and capabilities of their hybrid loops where impairment exists. As discussed above, in addition to subloop unbundling, the availability of TDM-based loops, such as DS1s and DS3s, provide competitive LECs with a range of options for providing broadband capabilities. We therefore find that competitive LECs retain alternative methods of accessing loop facilities in hybrid loop situations and disagree with WorldCom and others concerning the appropriate unbundling requirements for the next-generation broadband features, functions, and capabilities of hybrid loops.[839]

292. We are also informed in our analysis by the state of intermodal competition for broadband service.[840] As noted above, cable companies have made significant inroads in providing broadband service to the mass market, but these same companies have made less progress in the market for

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[839] WorldCom Dec. 12, 2002 Next-Generation Networks *Ex Parte* Letter at 3 (arguing that, without unbundled access to hybrid loops, competitive LECs will not be able to serve certain customers).

[840] *See* SBC Reply at 95; Allegiance Feb. 13, 2003 *Ex Parte* Letter at 2 (asserting that the Commission should consider the existence of an intermodal competitor with a leading position in the market).

traditional narrowband services. For example, cable companies have widely deployed broadband service in the form of high-speed Internet access offered via cable modem service, but cable telephony deployment is still in its infancy. According to a Commission staff report, more consumers continue to obtain their high speed Internet access by cable modem service than by xDSL, and the rate of growth for cable modem subscribership continues to outpace the rate of growth for xDSL subscribership (*i.e.*, since the period June to December 2001, cable modem subscribership for high speed Internet access increased 55 percent versus an increase of only 35 percent for xDSL-based subscribership).[841] A primary benefit of unbundling hybrid loops—that is, to spur competitive deployment of broadband services to the mass market—appears to be obviated to some degree by the existence of a broadband service competitor with a leading position in the marketplace.[842] We therefore tailor our

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[841] *High Speed Services December 2002 Report* at Table 2 (noting that cable companies provide 6.8 million lines capable of providing at least 200 kbps in both direction, compared to only 1.8 million xDSL lines). The *High Speed Services December 2002 Report* notes the percentage change of growth. For coaxial cable services providing at least 200 kbps in both directions, cable companies provided 4.394 million lines as of December 2001. This number increased to 6.819 million lines by June 2002. By comparison, wireline carriers provided 1.369 million such lines as of December 2001 and a total of 1.852 million such lines by June 2002. Thus, not only do cable companies provide more high speed lines capable of providing at least 200 kbps in both directions than xDSL-based carriers, but cable companies continue to outpace xDSL-based carriers in terms of the rate of growth of such subscribership. *See id.* at Table 2; *see also id.* at Table 1 (noting that cable companies provide 9.1 million cable modem-based lines compared to 5.1 million ADSL-based lines provided by LECs); *see also* Covad Siwek/Sun Decl. at paras 58-59. As a result, cable companies' leading position in providing broadband services to the mass market appears to be increasing rather than leveling off.

[842] Allegiance Feb. 13, 2003 *Ex Parte* Letter at 2 (asserting that the Commission should consider the existence of an intermodal competitor with a leading position in the market).

unbundling requirements to most effectively address those services that are not yet fully subject to competition (*i.e.*, narrowband services in the mass market) rather than the broadband services that are currently provided in a competitive environment.

293. Several parties have advocated drawing a bright line between "old" and "new" investment in network architectures and using such a division to articulate our unbundling requirements.[843] Others contend that we should make no such distinction.[844] Based on our evaluation of impairment, as informed by the two factors noted above, we determine that drawing such a bright line is practical, if the line is drawn between legacy technology and newer technology. In fact, we conclude that such a line is best drawn based on technological boundaries rather than transmission speeds, bandwidth, or some other factor—the technical characteristics of packet-switched equipment versus TDM-based equipment, for example, are well-known and understood by all members of the industry.

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[843] *See, e.g.*, Alcatel Comments at 15-17; SBC Reply at 109; Verizon Jan. 10, 2003 *Ex Parte* Letter at 6-7 (proposing a line drawn on voice-grade versus broadband capability); Verizon Nov. 22, 2002 *Ex Parte* Letter at 4.

[844] AT&T Reply at 216-19 (advocating "unified loops" theory and arguing that home-run copper is not sufficient to address impairment); Covad Reply at 46-54; WorldCom Reply at 111-13 (advocating in support of unbundling all the features, functions, and capabilities of loops, including those provided by means of DLC systems and packet-switching equipment); Letter from Jonathan Askin, General Counsel, ALTS, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 5 (filed Feb. 13, 2003) (ALTS Feb. 13, 2003 *Ex Parte* Letter) (arguing that the Commission should not limit access to capacity on any fiber-fed loop plant); Letter from Jonathan Askin, General Counsel, ALTS, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 (filed Jan. 31, 2003) (ALTS Jan. 31, 2003 *Ex Parte* Letter) (advocating in support of unbundling requirements on fiber-fed loop plant).

294. We stress that the line drawing in which we engage does not eliminate the existing rights competitive LECs have to obtain unbundled access to hybrid loops capable of providing DS1 and DS3 service to customers.[845] These TDM-based services—which are generally provided to enterprise customers rather than mass market customers—are non-packetized, high-capacity capabilities provided over the circuit switched networks of incumbent LECs. To provide these services, incumbent LECs typically use the features, functions, and capabilities of their networks as deployed to date—*i.e.*, a transmission path provided by means of the TDM form of multiplexing over their digital networks—or certain capabilities of multi-use integrated equipment (*e.g.*, integrated line cards deployed in DLC systems).[846] Incumbent LECs remain obligated to comply with the nondiscrimination requirements of section 251(c)(3) in their provision of loops to requesting carriers, including stand-alone spare copper loops, copper subloops, and the features, functions, and capabilities for TDM-based services over their hybrid loops. In this regard, we prohibit incumbent LECs from engineering the transmission capabilities of their loops in a way that would disrupt or degrade the local loop UNEs (either hybrid loops or stand-alone copper loops) provided to competitive LECs. To ensure competitive LECs receive the transmission path within the parameters we establish, we determine that any incumbent LEC practice, policy, or procedure that has the effect of disrupting or degrading access to the TDM-based

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[845] HTBC Feb. 7, 2003 *Ex Parte* Letter at 2; SBC Jan. 24, 2003 *Ex Parte* Letter.

[846] In their submissions in this proceeding, incumbent LECs demonstrate that they typically segregate transmissions over hybrid loops onto two paths, *i.e.*, a circuit-switched path using TDM technology and a packet-switched path (usually over an ATM network). *See, e.g.*, SBC Jan. 15, 2003 *Ex Parte* Letter at 4 (providing diagram to illustrate that its network architecture consists of a TDM-based portion and a packet-switched portion).

features, functions, and capabilities of hybrid loops for serving the customer is prohibited under the section 251(c)(3) duty to provide unbundled access to loops on just, reasonable, and nondiscriminatory terms and conditions.[847]

295. Finally, in balancing potential impairment against our obligations under section 706, we conclude that the costs associated with unbundling these packet-based facilities outweigh the potential benefits. A number of parties have argued that unbundling requirements deter the incentive of incumbent LECs to take risks and deploy fiber-based networks because they would face reduced returns on their investment.[848] We recognize that, particularly in the realm of next-generation network capabilities, unbundling requirements could have the unintended effect of blunting innovation because such an approach would largely lock competitive LECs to the technological choices of the incumbent LECs. We therefore consider the effect of other approaches, such as the subloop access and remote terminal collocation requirements, discussed above, on stimulating the deployment of advanced telecommunications infrastructure. For these reasons, we conclude that it is consistent with our section 706 mandate to promote investment in infrastructure by refraining from unbundling incumbent LECs' next-generation network facilities and equipment.

296. *Narrowband Services*. With respect to providing unbundled access to hybrid loops for a requesting carrier to provide narrowband service,[849] we require incumbent LECs to

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[847] Notwithstanding our prohibition against disrupting or degrading unbundled access to the TDM capabilities of hybrid loops, incumbent LECs may remove copper loops from their plant so long as they comply with our Part 51 network notification requirements, as amended by this Order, and any applicable state law.

[848] *See* Corning Comments at 7-9.

[849] Narrowband services include traditional voice, fax, and dial-up modem applications over voice-grade loops.

provide an entire non-packetized transmission path capable of voice-grade service (*i.e.*, a circuit equivalent to a DS0 circuit) between the central office and customer's premises. Pursuant to this requirement, competitive LECs will be able to obtain access to UNE loops comprised of the feeder portion of the incumbent LEC's loop plant, the distribution portion of the loop plant, the attached DLC system, and any other attached electronics used to provide a voice-grade transmission path between the customer's premises and the central office.[850] Consistent with the access requirements for broadband services noted above, we limit the unbundling obligations for narrowband services to the TDM-based features, functions, and capabilities of these hybrid loops. Incumbent LECs may elect, instead, to provide a homerun copper loop rather than a TDM-based narrowband pathway over their hybrid loop facilities if the incumbent LEC has not removed such loop facilities.[851]

297. We recognize that providing unbundled access to hybrid loops served by a particular type of DLC system, *e.g.*, Integrated DLC systems, may require incumbent LECs to implement policies, practices, and procedures different from

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[850] As discussed below, we do not require incumbent LECs to maintain or retain copper loops if they have deployed fiber replacements. Incumbent LECs have the option of either providing competitive LECs with unbundled access to a voice-grade channel over a hybrid loop or, to the extent a copper loop exists, the existing copper loop.

[851] As Qwest points out, when incumbent LECs construct new loop plant, they frequently overlay fiber facilities that supplement existing loops. Qwest Comments at 45; Alcatel Comments at 16 (noting that, when incumbent LECs deploy fiber loops, competitive LECs would continue to maintain access to legacy copper transmission facilities). Thus, the construction of new facilities does not in itself alter a competitive LEC's ability to use the incumbent's network. Qwest Comments at 45. Qwest explains that it "does not proactively remove copper facilities in the case of an overlay" so that requesting carriers should be able to continue providing service in these circumstances. Qwest Comments at 45-46.

those used to provide access to loops served by Universal DLC systems.[852] These differences stem from the nature and design of Integrated DLC architecture. Specifically, because the Integrated DLC system is integrated directly into the switches of incumbent LECs (either directly or through another type of network equipment known as a "cross-connect") and because incumbent LEC's typically use concentration as a practice for engineering traffic on their networks, a one-for-one transmission path between an incumbent's central office and the customer premises may not exist at all times. Even still, we require incumbent LECs to provide requesting carriers access to a transmission path over hybrid loops served by Integrated DLC systems.[853] We recognize that in most cases this will be either through a spare copper facility or through the availability of Universal DLC systems.[854] Nonetheless even if neither of these options is available, incumbent LECs must present requesting carriers a technically feasible method of unbundled access.[855]

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[852] McLeodUSA Dec. 18, 2002 *Ex Parte* Letter at 10-11; Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2-3 (filed Dec. 4, 2002) (AT&T Dec. 4, 2002 *Ex Parte* Letter) (describing operational issues related to providing unbundled access to loops served by DLC systems using a GR-303 interface, *i.e.*, integrated DLC systems, and proposing some solutions); McLeodUSA Nov. 15, 2002 *Ex Parte* Letter at 1.

[853] *See* SBC Jan. 15, 2003 *Ex Parte* Letter at 3; SBC Jan. 24, 2003 *Ex Parte* Letter, Attach. 2 at 3-4.

[854] *See* Letter from Jim Lamoureux, Senior Counsel, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 1 (filed Dec. 10, 2002) (SBC Dec. 10, 2002 *Ex Parte* Letter) (describing DLC deployment in SBC's region). SBC explains that, for 99.88% of SBC's lines served over Integrated DLC, competitive LECs have access to Universal DLC or spare copper facilities as alternatives to the transmission path over SBC's Integrated DLC system. *Id.*

[855] We recognize that it is technically feasible (though not always desirable for either carrier) to provide unbundled access to hybrid loops

a. Enterprise Market Loops

(i) Record Evidence

298. The record contains a wealth of evidence to inform our enterprise market loop analyses. First, it reflects that

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served by Integrated DLC systems. Incumbent LECs can provide unbundled access to hybrid loops served by integrated DLC systems by configuring existing equipment, adding new equipment, or both. *See* McLeodUSA Dec. 18, 2002 *Ex Parte* Letter 10-11. Qwest explains, for example, that it can provide a UNE loop over Integrated DLC systems by using a "hairpin" option, *i.e.*, configuring a "semi-permanent path" and disabling certain switching functions. *See* Qwest Nov. 13, 2002 *Ex Parte* Letter at 23 (describing "hairpin" solution to providing UNE loop over Integrated DLC system); *see also* Telcordia, Inc., NOTES ON THE NETWORKS, SR-2275, Issue 4, 12.13.2.1 (Oct. 2000) (describing means for incumbent LECs to provide unbundled loops to competitive LECs over integrated DLC systems). In addition, we understand that some Integrated DLC systems can simulate Universal DLC systems. *See* Telcordia, Inc., NOTES ON FIBER-IN-THE-LOOP (FITL), SR-Notes-Series-10, Issue 1, 2.3 (Jul. 2001) (noting that many modern Integrated DLC systems "can operate in UDLC mode."). Frequently, unbundled access to Integrated DLC-fed hybrid loops can be provided through the use of cross-connect equipment, which is equipment incumbent LECs typically use to assist in managing their DLC systems. McLeodUSA Nov. 15, 2002 DLC systems *Ex Parte* Letter at 10-11 (describing use of cross-connect equipment to provide unbundled loops over Integrated DLC systems); *Pronto Modification Order*, 15 FCC Rcd at 17565-66, App. B, C (showing that SBC typically uses a cross-connect in its network to establish the connection between the feeder loop plant and its circuit and packet switches); Verizon July 19, 2002 *Ex Parte* Letter at 3 (showing that Verizon typically uses central office terminations and cross-connects). McLeodUSA explains that an incumbent LEC can configure most Integrated DLC systems to assign requesting carriers "individual interface groups" that assist in establishing a complete transmission path between the central office and the customer's premises. In this way, incumbent LECs can provide Integrated DLC-fed hybrid loops on an unbundled basis. McLeodUSA Dec. 18, 2002 *Ex Parte* Letter at 10. In addition, McLeodUSA further explains that manufacturers either already account for an incumbent LEC's regulatory obligations in designing equipment (and software used to upgrade that equipment) or are planning to do so. *Id.* at 11 n.15.

competitive LECs have deployed fiber that enables them to reach customers entirely over their own loop facilities.[856] When competitive LECs self-deploy fiber they predominantly do so at the OCn-level.[857] In addition, the record shows that competitors have built fiber loops to buildings that carry a significant portion of the competitive traffic in certain MSAs.[858] In contrast, the record contains little evidence of

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[856] Both competitive LECs and incumbent LECs report that approximately 30,000, *i.e.*, between 3% to 5%, of the nation's commercial office buildings are served by competitor-owned fiber loops. *See, e.g.*, ALTS *et al.* Comments at 52 (citing to WorldCom Comments, CC Docket Nos. 96-98 at 7 (filed June 11, 2001) (WorldCom June 11, 2001 High-capacity Comments)); Sprint Comments at 23-24; WorldCom Comments at 74-76; *see also BOC UNE Rebuttal Report* at iv, 44; Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Oct. 30, 2002) (discussing high-capacity transmission facility deployment) (WorldCom Oct. 30, 2002 *Ex Parte* Letter); AT&T Comments at 152 (citing proprietary information); Cbeyond *et al.* Comments, CC Docket 96-98 at 23 (filed June 11, 2001) (Cbeyond *et al.* June 11, 2001 High-capacity Comments) (citing confidential information in attached Affidavit of Michael P. Duke, KMC Telecom, Inc. (KMC Duke June 11, 2001 High-capacity Aff.) at para. 5); NuVox *et al.* Comments, Affidavit of Nicholas D. Jackson, TDS Metrocom, Inc. (TDS Jackson Aff.) at para. 6; El Paso *et al.* Comments at 16. Competitive carriers indicate that most of these commercial office buildings are carrier hotels or large office buildings. *See, e.g.*, ALTS *et al.* Comments at 52; WorldCom June 11, 2001 High-capacity Comments at 9; El Paso *et al.* Comments at 16. Some commenters indicate that other facilities-based competitive LECs may have self-deployed high-capacity loops, but have not submitted comments in this proceeding. *See, e.g.*, SBC Comments at 102; Verizon Comments at 117.

[857] *See, e.g.*, ALTS *et al.* Comments at 52; CCG July 17, 2002 CLEC Survey *Ex Parte* Letter at 6-7; WorldCom Comments at 76; WorldCom Fleming Decl. at para. 10; NewSouth Reply at 17.

[858] *See, e.g.*, *BOC UNE Rebuttal Report* at 45 (relating this figure to a typical Tier-I MSA but stating that New York, San Francisco, Washington, D.C., and Los Angeles account for 40% of all data revenue nationwide).

self-deployment, or availability from alternative providers, for DS1 loops.[859] As for DS3 loops, evidence of self-deployment and wholesale availability is somewhat greater than for DS1s and is directly related to location-specific criteria.[860] Indeed,

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[859] Based on the record as a whole, for DS1 loops and some DS3 loops, overbuilding to enterprise customers that require services over these facilities generally does not present sufficient opportunity for competitors to recover their costs and, therefore, may not be economically feasible. *See, e.g.*, Covad Reply at 56; AT&T Jan. 14, 2003 *Ex Parte* Letter at para. 3 n.5; Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. B (filed Nov. 25, 2002) (AT&T Nov. 25, 2002 *Ex Parte* Letter) (providing loop build/no-build cost analysis); WorldCom Comments at 7; WorldCom Fleming Decl. at para. 10; Allegiance Reply at 38; NewSouth Reply at 17. In limited cases where evidence exists that a competitive LEC is serving customers via their own DS1 loops, the record suggests this is largely because these competitive LECs have *already* self-provisioned OCn level capacity to that specific location and other deployment barriers have not precluded them from using that capacity to serve other customers at lower loop capacity levels at that same location. *See* Letter from Joan Marsh, Director, Governmental Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, at para. 2 (AT&T Jan. 14, 2003 *Ex Parte* Letter); WorldCom June 11, 2001 High-capacity Comments at 8 (citing confidential information) and Attach. B, Proprietary and Confidential Declaration of Jay Slocum (WorldCom Slocum Decl.) at paras. 3-6.

[860] *See, e.g.*, WorldCom Fleming Decl. at para. 10 (when customer demand is projected at several DS3s or optical level capacity a self-build decision is made); WorldCom Comments at 7 (customers in a building must commit to at least three DS3 circuits before it is economically viable to extend fiber to that building); AT&T Comments at 134 (a competitive LEC can only self-deploy to a location with enormous demand, the smallest of which would be at the OC3 level); AT&T Nov. 25, 2002 *Ex Parte* Letter at 3 (the amount of committed traffic to support construction of loops for large business customers is about three DS3s, *i.e.*, an OC3), and Attach. B at 9 (at least three DS3s worth of demand is required before a facility build can generally be proven as financially prudent). The record also contains some evidence that DS3 loop services may be available from alternative providers other than the incumbent LECs in some buildings where competitive capacity to the building has already

competitive LECs agree that at a three DS3 loop capacity level of demand, it is economically feasible to self-deploy,[861] and record evidence reveals that both AT&T and WorldCom have self-provisioned DS3 circuits to many customer locations.[862]

299. The record also contains extensive, albeit contradictory, evidence regarding the degree to which competitors rely on the incumbent LEC's facilities versus their own to provision loops to their customers. According to the BOC UNE Fact Report 2002, market statistics show that competitive LECs are now serving between 13 and 20 million business lines off their own switches—yet they have obtained only about 1.5 million unbundled loops to serve business customers.[863] The BOCs conclude that competitive LECs are, therefore, serving the remaining 85-95 percent of those 13-20 million self-switched business lines using "alternative facilities" instead of unbundled loops.[864] In addition, the BOCs state that virtually all of the high-capacity unbundled

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been provisioned at the OCn level. *See* Sprint Comments at 23-24; Letter from John E. Benedict, Senior Attorney, Sprint, to Marlene H. Dortch, Secretary, FCC, CC Docket 01-338, 96-98, 98-147, Attach. at 1 (filed Oct. 16, 2002) (Sprint Oct. 16, 2002 *Ex Parte* Letter); WorldCom Comments at 16; KMC Duke June 11, 2001 High-capacity Aff. at para. 5 (citing confidential information); SBC Reply at 143 (citing AT&T Comments at 150 n.10 (citing confidential information)); WorldCom Slocum Decl. at paras. 3-6; AT&T Reply at 185 (citing CCG July 17, 2002 CLEC Survey *Ex Parte* Letter at 6 & Table 3); NuVox *et al.* Comments at 7.

[861] *See supra* note 860.

[862] *See* SBC Reply at 143 (citing AT&T Comments at 150 n.10 (confidential information)); WorldCom Slocum Decl. at paras. 3-6; *see also* CCG Jul. 17, 2002 CLEC Survey *Ex Parte* Letter (indicating that competitive loop capacity has been deployed into buildings but not indicating at what capacity level customers are served in those buildings).

[863] BOC UNE Fact Report 2002 at IV-1 through IV-4.

[864] The BOCs also claim that competitive LECs have deployed approximately 1,800 fiber "networks" in the 150 largest MSAs. BOC UNE Fact Report 2002 at I-3.

loops that competitive LECs have purchased in the BOC territories are DS1 loops and that competitive LECs have purchased only 140 unbundled DS3 loops, and not a single unbundled loop above a DS3 level.[865] The BOCs reason that these figures reflect that competitive LEC fiber networks are now so extensive in urban markets that they readily can be—and routinely are—extended as needed to pick up additional traffic from new customers in adjacent buildings, or down the block, and on outward from there.[866] According to the BOCs, once a competitive LEC deploys its initial fiber ring, extending that fiber incrementally to new customers is comparatively inexpensive.[867]

300. Competitive LECs strongly disagree with the BOCs' figures on line deployment, claiming these numbers are far less reliable than the data the Commission itself collects to measure competitive LEC deployment and the level of local competition.[868] Competitive carriers point to our own statistics which reveal that competitive LECs serve fewer than 9 million business lines nationwide, *i.e.*, not the 13 to 20 million lines that the incumbent LECs claim.[869] They further

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[865] BOC UNE Fact Report 2002 at IV-6. Specifically, the BOC UNE Fact Report 2002 states that competitive LECs have purchased a total of 72,000 high-capacity loops UNEs—all but 140 of which are DS1s. *Id.*

[866] *See* BOC UNE Fact Report 2002 at IV-4.

[867] *Id.*

[868] *See, e.g.*, El Paso *et al.* Comments at 16-18 & n.68 (citing numerous other competitive LEC comments).

[869] AT&T Reply, Declaration of C. Michael Pfau (AT&T Pfau Reply Decl.) at paras. 2, 12-14 (describing how the incumbent LECs' methods for determining the number of competitive loops deployed substantially overstates the actual number by including, *inter alia*, leased special access circuits and other "flawed" assumptions). *See* Covad Reply 55; AT&T Reply at 182-85; NuVox *et al.* Reply at 42; WorldCom Comments at 76 (arguing that even in the most competitive market in the

claim that this discrepancy is due in large part to the BOCs' inclusion of special access lines as alternative facilities in the BOC UNE Fact Report 2002.[870] Further, these commenters correctly note that the Commission staff's *Local Competition Report*, which calculates approximately 8.9 million voice-grade equivalent (VGE) lines for competitive LECs, explicitly indicates that it does not count special access lines as competitive LEC self-provisioned or "alternative provided" lines.[871] The BOCs acknowledge the inclusion of special access lines in their data, thus accounting for the approximate 15.8 million VGE differential from the Commission's *Local Competition Report*.[872]

301. Finally, the record indicates that various types of alternative transmission technologies to high-capacity local loops, *i.e.*, fixed-wireless, unlicensed-wireless, and satellite facilities, have been deployed in limited circumstances at certain locations.[873] The record, however, does not indicate the extent to which these alternative transmission technologies have been deployed or where they are available on a

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country, incumbent LECs have seven times more fiber than competitive LECs do).

[870] *See, e.g.*, AT&T Pfau Reply Decl. at paras. 14 (indicating that his experience recognizes that a much greater proportion of circuits are bought as special access).

[871] *See Local Competition June 2002* at 1 n.2, <http://www.fcc.gov/wcb/iatd/stats.html>.

[872] S*ee BOC UNE Rebuttal Report* at 45 (acknowledging that special access lines are, indeed, included in their numbers). In evaluating the extent to which competitive LECs have self-provisioned, the Commission has instructed competitive carriers to exclude local services provisioned over special access facilities in their reported data. *See supra* note 871. Because the Commission places little weight on the availability of special access in its impairment analysis, we do not rely on evidence that includes such lines.

[873] *See, e.g.*, BellSouth Comments at 42-43; SBC Comments at 91; Verizon Comments at 118.

wholesale basis.[874] Nevertheless, it appears that, in certain circumstances, such technologies have been used by competitive LECs as alternatives to incumbent LEC unbundled high-capacity loops.[875] Incumbent LECs report that competitive carriers can often deploy fixed wireless connections more quickly and cheaply than fiber, and that free space optics, *i.e.*, laser-guided high-bandwidth connections to a fiber backbone, is now a viable technology.[876] Competitive LECs, however, question the extent to which this deployment is widespread and point to certain technical limitations of such technologies.[877]

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[874] *See, e.g.*, ALTS *et al.* Comments at 45; Allegiance Comments at 19-22; Allegiance Reply at 36; AT&T Fea/Giovannucci Reply Decl. at 21 n.19; WorldCom June 11, 2001 High-capacity Comments at 13-14; Covad Comments at 49-50; Sprint Comments at 24-25; TDS Jackson Aff. at para. 9.

[875] *See Local Telephone Competition December 2002* Report; *see also* Allegiance Comments at 20-21; Sprint Comments at 25; Verizon Comments at 118.

[876] *See, e.g.*, Verizon Comments at 118 (stating that fixed wireless and free space optics is available for high-capacity links); SBC Reply at 91 (fixed wireless and satellite are broadband options for small business users).

[877] *See, e.g.*, Sprint Comments at 24-25 (indicating its significant experience with fixed wireless and noting its limitations and delayed development); TDS Jackson Aff. at para. 9 (indicating wireless loop alternatives are too costly, not available in TDS markets, and are not sufficiently robust platforms for TDS services); WorldCom June 11, 2001 High-capacity Comments, Attach. D, Affidavit of A. Daniel Kelley & Richard A. Chandler (WorldCom Kelley & Chandler June 11, 2001 High-capacity Aff.) at paras. 38-45 (arguing that there have been abortive attempts by competitors to provide high-capacity access to business customers using several fixed wireless technologies). We note that fixed wireless alternatives require Commission issued licenses and are subject to the availability of limited spectrum resources.

(ii) Impairment Analysis

(a) Operational and Economic Barriers to Serving the Enterprise Market

302. Enterprise market customers demand reliable services that include customized products, significant customer care, and enhanced security features.[878] Moreover, they prefer a single provider capable of meeting all their needs at each of their business locations which may be in multiple locations in different parts of the city, state or country.[879] The economics of serving a particular enterprise customer at each of its business' facilities may be very different depending on the location of the facility.[880] Small to medium-sized business customers generally demand services at the DS1, and to a lesser extent, DS3 capacities.[881] Competitive LECs meet these demands by providing packages of services, carrying both voice and data traffic, sold under month-to-month or short-term contracts.[882] In contrast, larger enterprise

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878 *See, e.g.*, GCI Reply at 20.

879 *See, e.g.*, WorldCom Comments at 13-18; Covad Reply at 57.

880 *Id.* The loop capacity impairment approach we adopt today accommodates the need to serve a single enterprise customer at multiple locations because it recognizes that it may only be economical to build at the primary location where the loop capacity demanded is very high, enabling the competitive LEC to obtain unbundled lower capacity loops to serve the customer's other business locations.

881 *See, e.g.*, NewSouth Reply at 16 (DS1 loops serve smaller businesses and DS3 and OCn serve larger businesses); NuVox *et al.* Reply at 39-41 (T1 facilities serve innovative bundled service offerings efficiently to small and medium business customers); Allegiance Reply at 35-36 (a significant segment of business customers are small and medium-sized enterprises that use DS1 capacity services).

882 *See, e.g.*, ITC^Deltacom Aug. 16, 2001 Petition at 1-2; NewSouth Comments at 5; Affidavit of Edward J. Cadieux, NuVox (NuVox Cadieux Jan. 24, 2003 Aff.) at paras. 4-5, *in* Letter from Steven A. Augustino, Counsel for NuVox *et al.*, to William Maher, Chief,

customers demand extensive services using multiple DS3s or OCn loops typically offered under long-term arrangements which guarantee a substantial revenue stream over the life of the contract.[883]

303. Because the cost to self-deploy local loops at any capacity is great,[884] and the cost to deploy fiber does not vary based on capacity,[885] a competitive LEC that plans to self-deploy its own facilities must target customer locations where there is sufficient demand from a potential customer base, usually a multiunit premises location, to generate a revenue stream that could recover the sunk construction costs of the underlying loop transmission facility, including laying the fiber and attaching the requisite optronics to light the fiber.[886] For competitive LECs deploying a very high-capacity loop facility to a particular customer location, the revenue commitment relative to the cost of constructing that loop facility may result in a positive profit margin for that single customer location, making it economically feasible from a

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Wireline Competition Bureau, FCC, CC Docket No. 01-338, 96-98, 98-147 (filed Jan. 24, 2003); *see also* Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Jan. 31, 2003) (WorldCom Jan. 31, 2003 *Ex Parte* Letter).

[883] *Id.*

[884] In discussing the general economic characteristics of loop deployment above, we noted that loop construction costs do not vary by the capacity of the loop and that the ability to recover the high fixed and sunk costs is the key factor to considering impairment. We also observed that loop impairment is closely related to the demands of the individual customer served by such loop and the capacity level of the loop provided. *See supra* Part VI.A.3.

[885] *See supra* Part VI.A.3.; *see also* Letter from Stephen W. Crawford, General Counsel, El Paso Global Networks, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (filed Feb. 5, 2003) (El Paso Feb. 5, 2003 *Ex Parte* Letter).

[886] *See, e.g.*, Allegiance Comments at 23; WorldCom Comments at 76; AT&T Reply at 145; *see also* TDS Jackson Aff. at para. 8.

profitability perspective, to self-provision in that particular case.[887] Even when the customer demand at a certain location may support self-deployment from a pure cost recovery perspective, however, there are other obstacles that must be overcome before such self-deployment can effectively occur.[888] These other barriers include the inability to obtain reasonable and timely access to the customer's premises both in laying the fiber to the location and getting it into the building thereafter,[889] as well as convincing customers to accept the delays and uncertainty associated with deployment of alternative loop facilities.[890]

304. The record reflects that constructing local loops generally takes between 6-9 months without unforeseen delay.[891] Competitive LECs describe numerous ways in which further delay affecting construction decisions and deployment occurs. These delays can be attributable to securing rights-of-way from local authorities which is necessary before competitive LECs can dig up streets to lay fiber. Often, carriers must engage in lengthy negotiations

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887 *Id.*; *see also* TDS Jackson Aff. at paras. 8-10.

888 *See, e.g.*, El Paso *et al.* Comments at 20-21.

889 *See, e.g.*, ALTS *et al.* Comments at 56 (discussing other barriers competitive LECs face in self-deployment); AT&T Reply at 174-79.

890 *See, e.g.*, Sprint Comments at 23; AT&T Reply at 175. Competitive LECs argue that they can not feasibly construct loop facilities and justify the fixed and sunk costs that self-provisioning will entail in advance of securing firm customer commitments guaranteeing the likelihood of cost recovery. *See, e.g.*, NuVox *et al.* Comments at 74; AT&T Reply at 176-77; Supra Comments at 7. This barrier to entry can be exacerbated when states adopt service quality rules that require local service providers to be in a position to provision service within a specified number of days after a customer signs up for service. *See, e.g.*, Ohio Admin Code Ch. 4901 § 1-5-20 (C); 220 ILCS 5 § 13-712; 83 ILAC § 730.540.

891 *See, e.g.*, ALTS *et al.* Comments at 58; WorldCom Comments at 75 (citing WorldCom Fleming Decl.).

with local authorities over the ability to use the public rights-of-way.[892] Similarly, obtaining building and zoning permits adds further delay as local authorities often conduct extensive inquiries into the planned construction activity of the competitive carrier.[893] Moreover, commenters note that many local jurisdictions impose construction moratoriums which prevent the grant of a franchise agreement to construct new fiber facilities in the public rights-of way.[894]

305. In addition to delays associated with gaining access to rights-of-ways and permits from local or municipal authorities, competitive LECs face additional barriers with regard to serving multiunit premises due to difficulties and sometimes outright prohibitions in gaining building access.[895] Although multiunit premises could present substantial economic opportunities for competitors, if the entity or individual controlling access to the premises does not allow a competitor to reach its customer residing therein (or places unreasonable burdens on the competitive LEC as a condition of entry), the competitive LEC may be unable to serve its

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[892] Because of the expense and delay associated with filing a preemption petition, carriers rarely avail themselves of section 253(c) of the Act. *See* 47 U.S.C. § 253(c).

[893] *See, e.g.*, ALTS *et al.* Comments at 23-24. Incumbent LECs argue, however, that actual competitive LEC deployment undermines these arguments. *See, e.g.*, SBC Reply at 156.

[894] *See, e.g.*, ALTS *et al.* Comments at 42, 50, 56, 58; *see also* New York Department Comments at 4. Incumbent carriers, however, generally argue that competitive LECs are not impaired by rights-of-way costs and delays. BellSouth argues that mandatory access to rights-of-way means that there are not generally extreme delays caused by disputes, and competitive LECs can turn to the accelerated docket if need be. BellSouth Comments at 68-69.

[895] *See, e.g.*, AT&T Reply at 175 (stating that the time to negotiate building access arrangements can be up to 18 months); *see also* WorldCom Oct. 25, 2002 Building Access *Ex Parte* Letter.

customer via its own facilities,[896] even where a competitive carrier may be ready, willing, and otherwise able to self-deploy the loop.[897]

306. In conducting our impairment analysis, we give substantial weight to the cost of constructing a loop facility in relation to the ability of the competitive carrier to recover those costs over time, *i.e.*, where the traffic volume and associated revenue potential from the loop facility allow a carrier to earn a return necessary to sustain its operations at that location. We do, however, consider other factors affecting competitive LEC loop deployment, including access to public and private rights-of-way and multiunit premises access, that incumbent LECs have not or do not similarly face as a result of their first-mover advantage. Altogether, these factors directly influence the ability of competitive carriers to

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[896] *See, e.g.*, AT&T Reply at 178-79. Verizon argues that, in the interim, competitive LECs can purchase special access services or use wireless or "free-space optics" loop in the interim during construction of the loop. Verizon Comments at 120-23. Competitive LECs, however, question the extent to which these wireless modes are available for use on an interim basis. *See supra* Part VI.A.4.a.(iii)(b). As for Verizon's suggestion that the use of special access services is sufficient, the Commission has stated it does not factor the availability of incumbent LEC's special access services into its loop impairment analysis. *See supra* Part V.B.1.d.(ii).

[897] *See, e.g.*, ALTS *et al.* Comments at 56-58; WorldCom Oct. 25, 2002 Building Access *Ex Parte* Letter; AT&T Reply at 175. We address building access-related barriers to loop deployment in greater detail below in our subloop and NID unbundling analyses, particularly, with respect to the Inside Wire Subloop. We expect that the subloop and NID unbundling rules that we adopt today will substantially mitigate the adverse impact of many of the building access-related barriers requesting carriers face with respect to serving customers in multiunit premises, particularly where the incumbent LEC's network extends beyond the minimum point of entry at the premises and the wiring in the building is owned and controlled by the incumbent LEC. Moreover, the Commission still has an open proceeding, WT Docket No. 99-217, related to building access. *See Competitive Networks Order*, 15 FCC Rcd 22983.

raise capital to deploy service to customers using their own loop facilities in a timely manner. The record reflects that these barriers can be overcome at certain loop capacity levels and certain service locations as we explain below.[898]

(b) General Framework

307. We organize our analysis of high-capacity loops based on capacity level because it is a more reliable indicator of the economic abilities of a requesting carrier to utilize third-party alternatives, or to self-deploy. At the same time, we recognize that operational and economic concerns will vary depending on the geographic market served. We find that the extent of competitive deployment of high-capacity loop facilities can vary tremendously by geographic area. More specifically, the barriers to entry requesting carriers face are most precisely identified on each geographic route serving a particular customer location. Where our record permits, however, we distill general characteristics of high-capacity loop deployment on a national level sufficient to make nationwide determinations of impairment and non-impairment. Where the record indicates impairment and that only with more granular evidence could a finding of non-impairment be made, we establish triggers to identify non-impairment based on customer location-specific evidence.

308. In conducting our impairment analyses for the various types of high-capacity loops, we first consider evidence of whether competitive LECs have self-deployed such loop facilities, on either an intermodal or intramodal basis, to provide retail services to enterprise market customers.[899] In

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[898] *See supra* para. 298; *see also* Allegiance Comments at 23; ALTS *et al.* Comments at 58.

[899] *Iowa Utils. Bd.*, 525 U.S. at 389 (noting that the Commission must consider the availability of elements "outside the incumbent's network" when applying the "impair" standard). *See also* ITTA Jan. 29, 2003 *Ex Parte* Letter, Attach. at 1 (noting that the question is whether elements are available from sources other than incumbent LEC).

our analysis, we recognize that a variety of alternative high-capacity loop transmission technologies, in various stages of development and use, are offered to enterprise customers in certain locations as potential alternatives to their traditional high-capacity loops, *i.e.*, different types of fixed-wireless, *e.g.*, 38 GHz, LMDS, MMDS, and 24 GHz; satellite facilities; and unlicensed wireless.[900] As we have indicated above,[901] evidence of self-deployment demonstrates better than any other kind of evidence what business decisions competitive carriers have *actually* made regarding the feasibility to deploy facilities without relying on the incumbent LEC. This evidence shows us, as a practical matter, that competitive LECs have been able to surmount barriers to entry with respect to that particular loop deployment. We then consider the extent of this deployment, whether it occurs or could occur on a nationwide basis, or is more limited in scope. Next we look at the extent to which wholesale alternatives to the incumbent LEC's unbundled loops are available to competitive LECs to provision high-capacity loops to their customers. We consider whether these alternatives, including alternative transmission technologies, are available ubiquitously or only in certain places.

309. We note that our consideration of alternative loop technologies in the enterprise market analysis differs from our consideration of intermodal alternatives in our mass market analysis. Different approaches are warranted because of the differences in how these technologies are deployed in these markets based on their suitability to individual customers, as well as the likelihood these technologies could be self-provisioned or made available to competitive carriers on a

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[900] *See, e.g.*, BellSouth Comments at 42-43; SBC Comments at 91; Verizon Comments at 118; *see also* ALTS *et al.* Comments at 45; Allegiance Comments at 19-22; Allegiance Reply at 36; AT&T Fea/Giovannucci Reply Decl. at 21.

[901] *See supra* Part V.B.

wholesale basis.[902] In the enterprise market, companies are able to target individual buildings and customers and determine which technology is the optimal means of reaching each customer. On the other hand, in the mass market where revenues are small, customers are typically served in large groups, using uniform technologies and mass marketing and provisioning techniques to minimize the cost of serving each customer.[903] As such, creating mechanisms to identify intermodal alternatives on an individual customer basis in the mass market is impractical, whereas it is feasible, in certain cases, in the enterprise market.

310. We find that certain types of alternative loop technologies could be made available on a wholesale basis to competitive carriers for providing high-capacity loop services to particular building locations in the enterprise market. Providers of viable intermodal alternatives to mass market customers have shown no inclination to provide access to competing carriers to serve their customers, nor would we expect them to.[904] With respect to the ability of a competitive LEC to self-provision high-capacity loops using alternative loop technologies, there are substantial differences between the mass market and the enterprise market. For example, one of the mass market's major alternative loop technologies, cable telephony, is only available to cable TV companies that, because of their unique economic circumstances of first-

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902 *See supra* Part V.B.1.d.(ii); *see also supra* Part VI.A.4.a.(iv).

903 Thus, those technologies that can only be used for accessing certain customers and require equipment installation at the customer location, such as fixed wireless, have only proven to be economically viable for customers found in the enterprise market.

904 A provider that has privileged access to a single mass market customer potentially will lose the customer if it provides wholesale access to a potential competitor.

mover advantages[905] and scope economies,[906] have access to the customer that other competitive carriers lack. Other technologies, such as fixed wireless, have not proven to be viable or deployable on a mass market scale. This contrasts with the enterprise market, where the record reflects that alternative technologies are available to some degree at certain locations that might be used by competitive carriers to provide high-capacity loops to enterprise customers.

(c) Capacity-based Impairment Findings

(i) Dark Fiber Loops

311. We find on a national basis that requesting carriers are impaired at most customer locations without access to dark fiber loops. Dark fiber, unlike "lit" fiber, is unused fiber within an existing fiber optic cable that has not yet been activated through optronics to render it capable of carrying communications services.[907] Users of unbundled dark fiber loops, similar to users of dark fiber transport,[908] provide the electronic equipment necessary to activate the dark fiber strands to provide services.[909] While the underlying capacity

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[905] These companies had the advantage of beginning with exclusive franchises and a captive market. These advantages are not available to other entrants.

[906] Scope economies exist when the cost of providing a service is lower when combined with other services. The cost of providing cable telephony to customers is lower for cable TV companies because they also provide video services to those customers.

[907] *See supra* note 628 (definition of dark fiber).

[908] *See infra* Part VI.C.4.c.(i).

[909] By itself, dark fiber has virtually unlimited capacity. It is the electronics that define the capacity. *See* El Paso Feb. 5, 2003 *Ex Parte* Letter at 2; *see also* AT&T Comments at 130; Letter from Thomas Jones, Counsel for Conversent Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Dec. 24, 2002) (Conversent Dec. 24, 2002 *Ex Parte* Letter).

level of a strand of dark fiber is comparable in total capacity to an OCn loop, we address dark fiber loops separately from OCn loops due to economic and operational characteristics that distinguish dark fiber from "lit" fiber.[910] We make our determination of impairment based on the high sunk costs associated with deploying high-capacity loop facilities and lack of evidence showing alternatives at specific customer locations.

312. Dark fiber exists in a carrier's network as unused fiber available because that carrier has deployed fiber in the first instance for the express purpose of lighting certain strands of

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[910] For example, competitive providers that use unbundled dark fiber claim that it can offer a higher level of service than "lit" transmission because unbundled dark fiber integrates more efficiently into their networks by reducing the number of failure points and by providing the competing carrier with greater ability to test for quality and maintenance. *See* Conversent Comments at 7; Letter from Scott Sawyer, Vice President—Regulatory Affairs, Conversent Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Oct. 10, 2002) (Conversent Oct. 10, 2002 *Ex Parte* Letter). Other competitive carriers indicate that dark fiber gives them greater control over their own network components which is an important aspect of their competitive service offerings. *See* Letter from Lawrence R. Freedman, Counsel for Norlight, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Dec. 30, 2002) (Norlight Dec. 30, 2002 *Ex Parte* Letter). In the *UNE Remand Order*, we recognized that the characteristics of dark fiber do not vary between loop and transport deployment. Because dark fiber is more extensively used in transport, we discuss its characteristics in more detail below in our discussion of dark fiber transport and do not repeat such discussion here other than to indicate that the characteristics of dark fiber described therein pertain to dark fiber loops as well. *See infra* Part VI.C.4.c.(i). Any operational or provisioning requirements associated with incumbent LEC provisioning of unbundled dark fiber transport apply equally to provisioning unbundled dark fiber loops. *See id.*, para. 385 (discussing issues associated with dark fiber access and granting states the flexibility to establish reasonable limitations and technical parameters).

it to serve a particular customer location.[911] The "dark" fiber strands, however, remain unlit. Dark fiber loop construction, like loops generally, involves substantial fixed and sunk costs. The primary costs associated with fiber deployment lie in the substantial sunk costs associated with physically laying the fiber cable.[912] In addition, there are other barriers that must be overcome before deployment can effectively occur.[913] These other barriers include the inability to obtain reasonable and timely access to the customer's premises both in laying the fiber to the location and getting it into the building thereafter,[914] as well as convincing customers to accept the delays and uncertainty associated with deployment of alternative loop facilities.[915] It is only when a competitive LEC has sufficient demand for "lit" fiber to a particular customer location to enable it to recover the fixed and sunk costs of the fiber deployment that it is economically feasible for that competitor to deploy fiber to that location.[916] When a fiber build decision is made, carriers take advantage of the fact that they are already incurring substantial fixed costs to obtain the rights-of way, dig up the streets, and trench the

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[911] Competitive carriers indicate that they, unlike the incumbent LEC, can not build fiber loop plant until they have secured a substantial customer base and revenue stream. *See* Letter from Robert J. Aamoth, Counsel for Dominion Telecom, to Michael K. Powell, Chairman, FCC, CC Docket No. 01-338 at 4 (filed Jan. 28, 2003) (Dominion Jan. 28, 2003 Aamoth *Ex Parte* Letter); *see also* El Paso *et al.* Comments at 9.

[912] *See supra* Part VI.A.3 (discussing loop construction costs); *see also* El Paso Feb. 5, 2003 *Ex Parte* Letter at 1.

[913] *See, e.g.*, El Paso *et al.* Comments at 20-21.

[914] *See, e.g.*, ALTS *et al.* Comments at 56 (discussing other barriers competitive LECs face in self-deployment); AT&T Reply at 174-79.

[915] *See supra* note 890.

[916] *See infra* Part VI.A.4.b.(i) (stating that evidence that the specific level of demand must be OCn or 3 DS3s of capacity into a particular customer location to justify competitive loop deployment); *see also supra* note 911.

cable, to lay more fiber than they immediately need. Once the significant fiber construction cost is incurred,[917] the record reflects that it is relatively easy and inexpensive to install fiber strands in excess of current demand at that time to maximize the use of the conduit and avoid the need to incur duplicate costs to retrench the same location in the future if demand for additional fiber facilities occurs.[918] As such, incumbent LECs are the largest source of intracity dark fiber nationwide as a result of their "first-mover" fiber deployment to the majority of customer locations.[919] This sharply contrasts with the availability of competitive dark fiber loops, which is necessarily limited by the economic barriers inherent in deploying alternative fiber loops, generally, except to certain customer locations.[920]

313. Because it is generally not economically feasible to deploy duplicate fiber loop facilities, the record reflects that a number of facilities-based competitive LECs rely on incumbent LEC unbundled dark fiber to provision "last-mile" services to small and medium-sized customers, particularly in rural, unserved, or underserved areas of the country.[921] These

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[917] *See supra* Part VI.A.3 (discussing loop construction costs); *see also* El Paso *et al.* Comments at 20-21.

[918] *See, e.g.*, El Paso *et al.* Comments at attached TPUC testimony at 8 (indicating an industry average of a "mere" $1.00 per foot to increase fiber placement from a 72 fiber strand cable to the next standard 144 size fiber strand cable); *see also* Norlight Dec. 30, 2002 *Ex Parte* Letter at 5.

[919] *See* Norlight Dec. 30, 2002 *Ex Parte* Letter at 5 (the first carrier to lay fiber to a particular location will lay significantly more than it will need because the incremental cost of burying additional fibers is negligible; requiring competitors to construct duplicate facilities where there is already excess capacity in place is precisely the inefficiency the *USTA* court instructed the Commission to avoid).

[920] *See supra* note 905.

[921] *See, e.g.*, Dominion Jan. 28, 2003 Aamoth *Ex Parte* Letter at 4 (dark fiber loops are especially critical because they are often located in areas where few or no competitors presently serve customers; eliminating

users of unbundled dark fiber provide the necessary optronics[922] and collocations that are preconditions to activating the fiber to serve customers. These carriers extensively deploy their own network facilities, *e.g.*, switches, transport, and the necessary optronics to light dark fiber to enable the provision of competitive high-capacity local service to end users in direct competition with the incumbent LEC.[923] These competitive LECs argue that they seek to construct their own fiber loops all the way to the customer if economically feasible to self-deploy, but that in many areas the level of demand is not sufficient to warrant overbuilding the dark fiber already available from incumbent LECs.[924] Because it is not economically feasible to self-deploy to many enterprise market customer locations, particularly less densely populated areas, unbundled dark fiber loops enable competitive carriers to build facilities-based networks to serve customers at those locations[925] with the least reliance on the

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unbundled dark fiber loops would deprive hundreds of businesses in Tier II and III cities from receiving competitive service); Norlight Dec. 30, 2002 *Ex Parte* Letter at 5 (in smaller rural markets where dark fiber exists there typically is no demand or expected growth in demand to warrant additional facilities); Norlight Comments at 2-4 (Norlight serves Tier II and III cities where the incumbent LEC is the only option other than cost prohibitive self-deployment to extend competitive service to customers).

[922] We note that the cost of electronics, such as those used to activate dark fiber, are not sunk costs like fiber construction costs because they can be moved from one location to another location upon exit from a particular location.

[923] *See, e.g.*, Norlight Dec. 30, 2002 *Ex Parte* Letter at 2.

[924] *Id* at 5. Carriers also note that in these more rural areas it actually may be less costly to both in time and dollars to self-deploy fiber than in more urban areas, but the level of demand to a customer location may simply be too low to justify the cost of installing duplicative facilities. *Id* at 3.

[925] *See, e.g.*, Dominion Jan. 28, 2003 Aamoth *Ex Parte* Letter at 2; Norlight Dec. 30, 2002 *Ex Parte* Letter at 5.

incumbent LEC's facilities.[926] We find that dark fiber loops allow competing carriers to provide services without incurring many of the high sunk costs of self-deploying the loop facility, but still require significant investment in collocation and optronics. We expect that unbundling of dark fiber loops will encourage construction of alternative facilities because it will provide facilities-based carriers the means of obtaining the last-mile facility necessary to serve customers over competitive networks comprised largely of facilities other than the incumbent LEC's. The availability of dark fiber loops increases the ability of facilities-based competitive LECs to reduce their reliance on unbundled "lit" high-capacity loops at locations where dark fiber loops are available to them, encouraging investment in the optronics necessary to light the fiber.[927] Moreover, unbundling dark fiber enables the Commission to limit unbundling obligations with respect to certain high-capacity "lit" loops as we discuss below.

314. In most areas, competing carriers are unable to self-deploy and have no alternative to the incumbent LEC's facility.[928] However, the record indicates that competitive

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[926] *See, e.g.*, Letter from Joshua M. Bobeck, Counsel for El Paso Global Networks, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, 96-98, 98-147 at 2 (filed Oct. 4, 2002) (El Paso Oct. 4, 2002 *Ex Parte* Letter) (dark fiber is the UNE that is closest to 100% facilities-based competition).

[927] *See* Letter from Stephen W. Crawford, General Counsel, El Paso Networks, and Scott Sawyer, Vice President and Counsel, Conversent Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1 (filed Nov. 26, 2002) (El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter).

[928] *See supra* note 856; *see also* Letter from Brad E. Mutschelknaus, Counsel for OnFiber Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, 96-98, 98-147 at 2 (filed Feb. 6, 2003) (OnFiber Feb. 6, 2003 *Ex Parte* Letter) (asserting that the vast expense associated with deploying dark fiber precludes self-provisioning and prevents any kind of alternative market from developing).

LECs have been able to self-deploy fiber to some customer locations, although the record does not reveal the specific locations of such deployment.[929] For this reason, we delegate to the states the authority to collect and analyze more specific evidence of loop deployment on a customer location basis, applying a uniform national trigger that measures self-provisioning to determine customer locations where competitive carriers are not impaired without access to incumbent LEC unbundled dark fiber loops.[930]

(ii) OCn Loops

315. We find that requesting carriers are not impaired on a nationwide basis without access to unbundled "lit" OCn loops because the barriers relating to the deployment of OCn "lit" loops can be overcome through self-deployment at the OC3 and above level, the use of unbundled dark fiber, or the use of "lit" DS3s.[931] Record evidence reflects competitive

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[929] *See supra* note 856; *see also* Letter from Patrick J. Donovan, Counsel for El Paso Networks LLC, to Marlene H. Dortch, Secretary, FCC, CC *Docket* No. 01-338 (filed Jan. 22, 2003) (El Paso Jan. 22, 2003 *Ex Parte* Letter); Letter from Ann D. Berkowitz, Project Manager—Federal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 19 (filed Jan. 31, 2003) (discussing competition for special access) (Verizon Jan. 31, 2003 Special Access *Ex Parte* Letter); Norlight Dec. 30, 2002 *Ex Parte* Letter at 2.

[930] *See infra* Part VI.A.4.b.(ii)(d) (discussing in detail the state reviews on a customer-location specific basis applying the defined Self-Provisioning Trigger and Competitive Wholesale Facilities Trigger).

[931] OCn circuits range from OC3 to OC192. The smallest common OCn capacity circuit, an OC3, is comparable in capacity to 3 DS3s, 84 DS1s, or 2016 voice-grade loops. Our impairment finding for OCn level loops differs from our finding for dark fiber loops as the economics of deploying "lit" fiber at the OCn level differs from deploying dark fiber at a comparable capacity level. While the construction-related costs in laying the fiber are the same, the ability to recover these sunk costs differs if considered as distinct types of loop facilities. As we noted in our discussion of dark fiber loops above, dark fiber is unused deployed fiber along a particular route that is not associated with a specific potential

deployment of loops at the OCn level and competitive carriers confirm they are often able to economically deploy these facilities to the large enterprise customers which use them.[932] Further, there does not appear to be any evidence of demand for incumbent LEC OCn level unbundled loops.[933] Competitive LECs have deployed OCn capacity to some commercial buildings nationwide, including Tier II and Tier

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revenue stream from a known customer at the time of construction. *See supra* para. 312. A competitive LEC does not deploy dark fiber to use in self-provisioning high-capacity local service to customers *unless* that competitive LEC already has sufficient customer demand at a "lit" fiber level, *i.e.*, at the OCn or 3 DS3 level, to recover the sunk costs of the fiber construction. *See supra* note 911; *see also* Dominion Jan. 28, 2003 Aamoth *Ex Parte* Letter at 4. In other words, competitive carriers can not economically deploy dark fiber on a stand-alone basis for self-deployment purposes without an associated "lit" fiber demand. While carriers deploying OCn fiber loops must necessarily first deploy dark fiber and then attach the requisite optronics to activate the fiber for service capability at the OCn level, carriers deploying fiber to meet a particular customer demand for OCn capacity are viewed as deploying an OCn loop to serve that customer rather than deploying dark fiber to serve that customer.

[932] *See, e g.*, WorldCom Fleming Decl. at para. 10 (when customer demand is projected at several DS3s or optical level capacity a self-build decision is made); Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, 96-98, 98-147, Attach. at 5 (filed Oct. 7, 2002) (WorldCom Oct. 7, 2002 *Ex Parte* Letter) (for self-deployment to be feasible, the demand must be for at least multiple DS3s); AT&T Comments at 134 (a competitive LEC can only self-deploy to a location with enormous demand, *i.e.*, the smallest of which would be at the OC3 level); AT&T Nov. 25, 2002 *Ex Parte* Letter at 2 (the amount of committed traffic to support construction of loops for large business customers is about 3 DS3s, *i.e.*, an OC3), and Attach. B at 9 (at least 3 DS3s worth of demand is required before a facility build can generally be proven as financially prudent).

[933] *See supra* para. 299 (BOCs state that not a single unbundled loop above a DS3 level has been purchased).

III markets.[934] We find this evidence of deployment persuasive in demonstrating that competitive LECs can often overcome the barriers associated with loop deployment at the OCn level.

316. Commenters indicate that services offered over OCn loops produce revenue levels which can justify the high cost of loop construction, providing the opportunity for competitive LECs to offset the fixed and sunk costs associated with the loop construction. Large enterprise customers purchasing services over OCn loops[935] enter into long-term contracts committing to revenue streams and associated early termination charges that provide the ability for carriers to recover their substantial non-recurring "set-up" or construction costs.[936] Customers obtaining services at the

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[934] *See* KMC Duke June 11, 2001 High-capacity Aff. at para. 3 (naming the Tier III markets they serve with their own facilities); CCG July 17, 2002 CLEC Survey *Ex Parte* Letter (explaining that the six metropolitan areas chosen to represent competitive LEC loop buildout—Albany, Augusta, Boston, Chicago, Corpus Christi, and Portland—represent a broad cross section of populations and business concentrations); *see also* WorldCom Oct. 30, 2002 *Ex Parte* Letter.

[935] We recognize that large enterprise customers may also have remote business locations that do not require the capacity of an OCn loop. We reiterate that we do not tailor our rules to restrict or limit unbundling based on the size or class of the customer served. A large enterprise customer's particular loop capacity demand at a given service location is determined by multiple factors unique to that customer's needs at that specific location, rather than the size of that customer. Merely because large enterprise customers are typically the only type of customer that purchase OCn capacity loops does not equate to the fact that OCn loops are the only type of loop such customers demand.

[936] *See supra* note 932; *see also* Declaration of Alfred E. Kahn and William E. Taylor, RM No. 10593 at 32-33 (discussing generally how long-term contracts and associated termination penalties are used to ensure cost recovery) *in* Verizon Jan. 31, 2003 Special Access *Ex Parte* Letter. Long-term contracts are used to minimize risk exposure and stabilize construction costs over time when the seller incurs heavy sunk costs as part of a transaction. *Id.*

OCn level also understand that transitioning such services to a new provider is not an overnight process. Because of their level of business planning sophistication, as a practical matter, they begin the process of seeking a new or alternative service provider well in advance of their actual need for the service.[937] Accordingly, they are more receptive to the inherent provisioning delays associated with constructing these high-capacity loops to meet their particular needs than smaller business customers served by lower capacity loops.[938] Competitive carriers deploying fiber at the OCn capacity level are therefore able to accommodate provisioning delays and additional expense at the start of the construction process, mitigating obstacles to self-deploying they may face in gaining access to public and private rights-of-way.[939]

317. Furthermore, enterprise customers requiring OCn level capacity are often located in multiunit premises where they may have the ability to exert greater influence over building access because: (1) their operations are so

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[937] If this customer's competitive OCn loop is to be provisioned at their current business location, we understand they will generally begin the process of looking at alternative service providers months in advance of the expiration date of their current contract for service, which will usually include a provision for month-to-month service thereafter for as long as needed. If service is to be provided at a brand new location that the customer is moving to, or having built, at an OCn level of capacity, decisions regarding which service provider will provision that service will similarly be made months before occupancy. Each of these scenarios mitigates the impact of the lead time to build new loops with respect to serving these customers.

[938] *See, e.g.*, Sprint Comments at 23; WorldCom Fleming Decl. at paras. 9-10.

[939] To the extent these initial obstacles are in the form of unreasonably high costs for rights-of-way access, competitive LECs deploying fiber to serve customers at the OCn level are better able to overcome these barriers as the revenues associated with OCn capacity service contracts are quite high. *See generally* AT&T Comments at 134; WorldCom Comments at 76; *see also* TDS Jackson Aff. at para. 8.

substantial that they own the premises outright; (2) they control the access to the premise; or (3) they have sufficient influence over the landlord/building owner to overcome building access impairments the competitive provider may encounter due to the amount of leased occupancy space for which this enterprise customer has committed.[940]

318. Competitive carriers requiring OCn capacity "lit" loops to serve customers will also have the ability to purchase dark fiber, including unbundled dark fiber loops, and attach their own optronics to activate such loops to serve their customers at those locations where unbundled dark fiber is available. In circumstances where competitive LECs may be unable to self-deploy the underlying OCn fiber loop, the record demonstrates that there is no impairment with respect to obtaining and attaching the requisite optronics necessary to light dark fiber at the OCn level to provide service. Based on record evidence that self-deployment of the loop transmission facility at the OCn level is generally feasible, it necessarily follows that the lesser cost of self-providing just the optronics to light the fiber at the OCn level is economically feasible. While we recognize that dark fiber may not be available at every customer location nationwide, a competitive carrier may also access "lit" loops. Because the record demonstrates, however, that competitive carriers routinely self-deploy when customer demand is three DS3s (or optical capacity) as discussed further below, we limit the availability of "lit" DS3 loops to a maximum of two unbundled DS3 loops per carrier at each customer location.[941]

319. Finally, as we have noted, at least in the BOC regions, the record reflects that competitive LECs have not obtained unbundled loops at the OCn level.[942] Thus, there are few, if

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940 *See, e.g.*, AT&T Reply at 174-77.

941 *See infra* para. 321.

942 *See supra* para. 299.

any, transition issues with regard to OCn loops. In the event a competitive LEC of which we are not aware is currently providing service over an unbundled OCn loop, the transition scheme that we have adopted herein governs such situation.[943]

(iii) DS3 Loops

320. We make a national finding that requesting carriers are impaired on a customer-location-specific basis without access to unbundled DS3 loops. The inability to recover the significant fixed and sunk construction costs of DS3 loops, coupled with the additional barriers to loop deployment associated with accessing rights-of-way; obtaining and paying for building access; and other service provisioning delays impair the ability of requesting carriers to self-provision single DS3 loops.[944] Unlike deployment at even the lowest OCn level, the record indicates that a single DS3 loop, generally, can not provide a sufficient revenue opportunity to overcome these barriers.[945] Because our impairment analysis rests most heavily on the ability of a self-deploying carrier to

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[943] *See supra* Part VIII.D (addressing the transition process adopted herein).

[944] *See supra* Part VI.A.3 for a discussion of the general economic characteristics of loop deployment. Because the cost of constructing a fiber loop facility does not vary to any significant degree with loop capacity, to economically justify a particular loop construction expenditure, a competitive carrier must have some reasonable expectation of being able to recover its cost over time.

[945] *See supra* note 860. The potential revenue stream associated with a customer commitment for a single DS3 loop is far less than the revenue stream associated with an OCn loop, yet the cost to construct the loop facility is the same. At the smallest OCn level, *i.e.*, OC3, there are 2,016 voice-grade equivalent lines. A single DS3 is equivalent to 672 voice-grade equivalent lines. A simple comparison of the relative voice-grade equivalent lines demonstrates that a customer commitment in terms of potential revenue stream for a DS3 is many times smaller than that of an OC3 loop. Accordingly, it takes a longer period of time for a competitive LEC to recover its costs of deploying a single DS3 loop facility.

recover its sunk and fixed costs, the inability to recover such costs at a single DS3 level results in impairment. In finding impairment based on the inability to recover sunk costs, we find that the other economic and operational barriers faced by competitive LECs in self-deploying loops generally, *i.e.*, difficulties in acquiring municipal and private rights-of-ways as well as gaining building access from owners of multiunit premises,[946] exist for competitive LECs with respect to single DS3 loop deployment.[947]

321. Despite the economic barriers that a competitive LEC faces in deploying single DS3 loops, the record indicates that some carriers have been able to overcome these barriers when providing multiple DS3s to a specific customer location.[948] Because the record does not, however, provide sufficient evidence to determine the specific factors that make such deployment feasible at these locations, we are unable to

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[946] *See, e.g.*, AT&T Reply at 174-79 (discussing other barriers linked to the incumbent LECs' historical monopoly that preclude competitive loop deployment independent of cost factors); *see also* NuVox *et al.* Comments at 74; KMC Duke Aff. at paras. 7-9 (citing proprietary information); SNiP LiNK Polito Aff. at paras. 3-7; Sprint Comments at 22; Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Oct. 25, 2002) (discussing building access barriers) (WorldCom Oct. 25, 2002 Building Access *Ex Parte* Letter); ALTS *et al.* Comments at 56.

[947] *See supra* Part VI.A.3. for evidence of the existence of the other operational barriers to DS3 loop capacity deployment.

[948] The record indicates that some competitive carriers have economically self-deployed DS3 capacity loops to certain customer locations where the aggregate demand for DS3 capacity at those locations is *three* or more. *See supra* note 860; *see also* Letter from David L. Lawson, Counsel for AT&T to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 02-33 at 1 n.2 (filed Feb. 3, 2003) (AT&T Feb. 3, 2003 Lawson *Ex Parte* Letter) (citing AT&T Nov. 25, 2002 *Ex Parte* Letter indicating competitors can economically self-deploy at 3 DS3s worth of traffic).

conclude with any precision exactly where requesting carriers would not be similarly impaired without access to unbundled DS3 loops.[949] Similarly, the record reflects a small but potentially growing wholesale alternative DS3 loop market.[950] Once again, however, the record in this proceeding does not specify exactly where this deployment has occurred. Therefore, as discussed below, we delegate to the states the authority to collect and analyze more specific evidence of DS3 loop deployment on a customer location-specific basis, applying uniform national triggers that measure self-provisioning or wholesale alternative availability to determine customer locations where competitive carriers are not impaired without access to incumbent LEC unbundled DS3s.[951]

322. If, as the incumbent LECs argue, "a small number of buildings in each metropolitan area typically account for a large fraction of the traffic,"[952] we expect that the triggers that we adopt today will provide incumbent LECs substantial relief from their unbundling obligations while simultaneously ensuring that competitive carriers get unbundled high-

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[949] Indeed, we note that competitive carriers do not have an incentive to volunteer such information in our record. The record does provide sufficient information to enable us to impose a limitation on the number of DS3 unbundled loops that a requesting carrier can obtain to any single customer location. *See infra* para. 324.

[950] *See* AT&T Comments at 150 n.110 (citing confidential information that indicates that some of its DS3 level loop capacity is obtained from non-incumbent LEC sources).

[951] *See infra* Part VI.A.4.b.(ii)(d) (discussing in detail the state reviews on a customer-location specific basis applying the defined Self-Provisioning Trigger and Competitive Wholesale Facilities Trigger).

[952] *BOC UNE Rebuttal Report* at 45.

capacity loop access only where they are unable to economically self-deploy or use alternative facilities.[953]

323. In finding that competitive carriers are impaired without unbundled access to DS3 loops, we disagree with incumbent LECs' claims that market evidence of DS3 deployment in certain situations demonstrates that, in *all* situations, traffic and revenue potential justify a nationwide finding of DS3 non-impairment. The limited record evidence we have of self-deployment does not permit such broad extrapolation.

324. *Limitation on Multiple Unbundled DS3 Loops.* Finally, consistent with our finding of no impairment at the OCn loop capacity level, and because the record confirms that it is economically possible to self-deploy at a three DS3 loop level to a particular customer location, we limit an incumbent LEC's unbundling obligation to a total of two DS3s per requesting carrier to any single customer location.[954] We find that as a carrier approaches customer demand for three DS3s of capacity at a particular customer location, it is feasible for

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[953] One commenter indicates that 200 to 300 out of 15,000 multiunit premises in a typical Tier-I MSA generate 80% of the data revenues. *Id.* Verizon indicates a Tier I MSA is typically defined as an MSA with a population of one million or more. *See* Verizon Jan. 31, 2003 Special Access *Ex Parte* Letter at 13 n.62.

[954] We note that our unbundled DS3 loop cap is smaller than the unbundled DS3 transport cap. *See infra* Part VI.C.4.c.(ii). The unbundled DS3 loop cap is based on record evidence indicating the feasibility of DS3 loop self-deployment at a 3 DS3 level. Indeed, AT&T's record evidence indicates economic feasibility at about 2.75 DS3s or 77 DS1s worth of traffic. *See* AT&T Jan. 14, 2003 *Ex Parte* Letter at 4 (citing AT&T Nov. 25, 2002 *Ex Parte* Letter, Attach. B). Once a competitive carrier's customer demand at a location exceeds 2 DS3 loops, the competitive carrier should plan to self-deploy DS3 capacity to that customer location. The record evidence for the self-provisioning feasibility level for DS3 transport varies, but because it generally is within a higher range than for DS3 loops, establishing the DS3 transport limit at a higher number is appropriate.

that carrier to self-deploy its own high-capacity facilities. Our unbundled DS3 loop quantity limit is location specific, maintaining consistency with our impairment conclusions about OCn capacity loop deployment,[955] as well as DS3 loop deployment.

(iv) DS1 Loops

325. We find that requesting carriers generally are impaired without access to unbundled DS1 loops.[956] The record contains little evidence of competitive LECs' ability to self-deploy single DS1 capacity loops[957] and scant evidence of wholesale alternatives for serving customers at the DS1 level.[958] Commenters expressly state that a competitive

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[955] We have noted that the lowest common OCn capacity standard, OC3, is equivalent to three DS3 circuits in terms of capacity. *See supra* note 931.

[956] DS1 loops will be available to requesting carriers, without limitation, regardless of the technology used to provide such loops, *e.g.*, two-wire and four-wire HDSL or SHDSL, fiber optics, or radio, used by the incumbent LEC to provision such loops and regardless of the customer for which the requesting carrier will serve unless otherwise specifically indicated. *See supra* Part VI.A.4.a.(v) (discussing FTTH). The unbundling obligation associated with DS1 loops is in no way limited by the rules we adopt today with respect to hybrid loops typically used to serve mass market customers. *See supra* Part VI.A.4.a.(v)(b)(i).

[957] We note that at least two competitive LECs have provided evidence that indicates that they self-provide some DS1 capacity loops to certain customer locations. *See supra* note 859. It is important to note, however, that this evidence of self-provisioning has been possible where that same carrier is already self-provisioning OCn or a 3 DS3 level of loop capacity to that same customer location. Thus, this evidence does not support the ability to self-deploy stand-alone DS1 capacity loops nor does it impact our DS1 impairment finding. *See* AT&T Comments at 150 n.10 (citing confidential information); WorldCom Slocum Decl. at paras. 3-6.

[958] *See* Covad Reply at 56 (discussing no alternative DS1 capacity providers); NewSouth Comments at 13-17; NewSouth Reply at 17; WorldCom Comments at 74; AT&T Jan. 14, 2003 *Ex Parte* Letter at 2; WorldCom Oct. 30, 2002 *Ex Parte* Letter; AT&T Feb. 3, 2003 Lawson *Ex*

carrier would not construct its own DS1 or lower capacity loops.[959] Indeed, incumbent LECs recognize a distinction between provisioning DS1 level loops and other higher capacity loops.[960] The record shows that requesting carriers seeking to serve DS1 enterprise customers face extremely high economic and operational barriers in deploying DS1 loops to serve these customers.[961] Customers demanding services over DS1 loops possess significantly different economic characteristics for competitive carriers than large enterprise market customers. In particular, small and medium enterprise customers served by DS1 loops provide much lower revenue opportunities than large enterprise market

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Parte Letter at 13. The record indicates that even competitive carriers that have deployed their own loop facilities do not have the back office support systems in place that are necessary to offer any excess capacity on a wholesale basis to other competitive LECs. *See, e.g.*, KMC Duke Aff at para. 13 (discussing what systems are necessary to wholesale service to other carriers).

[959] *See* AT&T Jan. 14, 2003 *Ex Parte* Letter at 3 n.5; Covad Comments at 47; Allegiance Reply at 38.

[960] SBC Comments at 100-01; SBC Reply at 156 (recognizing that impairment may exist for certain DS1 loops and proposing a carve-out).

[961] *See supra* Part VI.A.4.b.(ii)(a) for a discussion of the economic and operational barriers to DS1 loop capacity deployment. The record indicates that many competitive carriers providing DS1 capacity loops to enterprise market customers serve the small to medium-sized segment of this market which is characterized as typically underserved by incumbent LECs. Indeed, many of these competitive LECs, which are themselves small to medium size businesses, have entered the competitive telecommunications market specifically to serve these smaller business customers requiring primarily DS1 level capacity. The DS1 loop unbundling rule we adopt today recognizes the dependency that smaller business customers and carriers have on DS1 capacity loops and accommodates those needs consistent with our impairment framework. *See also* NuVox Cadieux Jan. 24, 2003 *Ex Parte* Aff. (for general discussion of serving small to medium business customers with DS1 capacity); NuVox *et al.* Comments, attached Profiles & Affidavits; Covad Reply at 54; NewSouth Reply at 16-17; Allegiance Reply at 36-38.

customers and, generally, resist long-term contract obligations.[962] These factors lead to a greater potential to change providers on a more frequent basis, *i.e.*, churn, resulting in the inability of competitive LECs to rely on a long-term DS1 revenue stream, as they can with much higher loop capacity demands. Taken together, these factors make it economically infeasible for competitive LECs to deploy DS1 loops, which require the same significant sunk and fixed construction costs as higher capacity loops.

326. While DS1 loops are typically used to serve small to medium-sized business customers associated with the enterprise market, they are also used to serve customers associated with the mass market. Although we recognize different characteristics between these two markets, *e.g.*, enterprise customers are more concentrated in urban locations, in multiunit premises, and demand greater variety and higher quality services than mass market customers, the economics of constructing DS1 loop facilities to serve these different customer classes are not significantly different. The average revenue available per customer in either of these markets is very low relative to larger enterprise market customers using higher capacity loops.[963] While we recognize that retail business customer rates are typically higher than residential rates, the record reflects that the revenues generated from small and medium enterprise customers are not sufficient to make self-deploying DS1 loops economically feasible from a cost recovery perspective.[964] As we have

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[962] *See, e.g.*, NewSouth Reply at 18 (discussing the lower traffic volumes and revenue potential that can be generated from a DS1); *see also* TDS Jackson Aff. at para. 10.

[963] This fact can be most easily demonstrated by simply comparing voice-grade line equivalents, *i.e.*, a single DS1 is equivalent to 24 voice-grade lines whereas 3 DS3s (the number of DS3 capacity loops where self-provisioning begins to be economically feasible) is equivalent to 2016 voice-grade equivalents.

[964] *See supra* note 962.

stated, our impairment findings rely most heavily on the economic feasibility of competitive LECs to self-deploy and recover sunk costs.[965] Competitive LECs do not have the ability to recover sunk costs in self-deploying DS1 loops. Furthermore, the other economic and operational barriers faced by competitive LECs in self-deploying loops generally, *e.g.*, the inability to obtain reasonable and timely access to the customer's premises both in laying the fiber to the location and bringing it into a building thereafter,[966] as well as convincing customers to accept the delays and uncertainty associated with deployment of alternative loop facilities exist with DS1 loop self-deployment.[967] Indeed, because the ability to absorb the additional "costs" associated with these other economic and operational barriers over time becomes increasingly more difficult at lower loop capacity levels, these barriers impact the ability to self-deploy at a DS1 level to an even greater extent than at higher loop capacity levels.[968]

327. Because the record does not demonstrate that carriers can economically self-provision at the DS1 level, we do not delegate to the states the authority to consider DS1 loop impairment on a location-specific basis based on a self-provisioning trigger.[969] On the other hand, although the record indicates little evidence of wholesale alternative DS1

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[965] *See supra* para. **Error! Reference source not found.**.

[966] *See, e.g.*, AT&T Reply at 174-79; ALTS *et al.* Comments at 56 (discussing, generally, some of the other barriers competitive LECs face to self-deployment).

[967] *See supra* Part VI.A.3., Part VI.A.4.b(ii)(a) for evidence of the existence of the other operational barriers to DS1 loop capacity deployment.

[968] *See supra* para. 315 (discussing the ability to absorb these costs at the OCn loop level).

[969] *See infra* Part VI.A.4.b(ii)(d) (discussing in detail the state reviews on a customer-location specific basis) and para. 334 (describing why states will not apply the Self-Provisioning Trigger to DS1).

loop capacity, evidence of alternative providers at the DS3 and higher capacity levels suggests that there may be specific locations where competitive carriers have deployed fiber and could offer excess capacity at the DS1 loop level. Thus, we recognize the possibility that non-incumbent LEC DS1 loop alternatives may be available now or in the near future at particular customer locations. As explained below, we delegate to the states the authority to collect and analyze more specific evidence of wholesale alternatives to DS1 loops on a customer location-specific basis, applying a uniform national trigger that measures the availability of wholesale competitive alternatives to determine customer locations where competitive carriers are not impaired without access to incumbent LEC unbundled DS1s.[970]

(d) Location-Specific Review Conducted By States Applying Federal Triggers

328. In making affirmative impairment findings on a nationwide basis for dark fiber loops, DS3 loops, and DS1 loops, we recognize that limited alternative deployment has occurred at particular customer locations not specified in our record for certain of these high-capacity loop types which could lead to a finding of no impairment for that loop type at that location. Thus, for these loop types, a more granular impairment analysis should be applied on a customer-by-customer location basis. To that end, we delegate to states a fact-finding role to identify where competing carriers are not impaired without unbundled high-capacity loops pursuant to two triggers. If a state commission finds that the federal triggers for a finding of non-impairment have been satisfied for a specific type of high-capacity loop at a particular customer location, the incumbent LEC will no longer be required to unbundle that loop type at that location according

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[970] *See infra* Part VI.A.4.b(ii)(d) (discussing in detail the Competitive Wholesale Facilities Trigger).

to the transition schedule adopted by the state commission.[971] Incumbent LECs must make the unbundled high-capacity loops for which we find impairment on a nationwide basis available to qualifying requesting carriers except at those customer locations where a state commission's granular review has confirmed that no impairment exists and unbundling is no longer required. In the event a state commission declines to exercise the authority we delegate to it, a party may petition this Commission to conduct such analysis.[972]

329. We establish two different types of triggers to identify the specific customer locations where there may be no impairment for the high-capacity loops we identify below and the incumbent LEC unbundling obligation can be eliminated at that customer location: 1) where a specific customer location is identified as being currently served by two or more unaffiliated competitive LECs with their own loop transmission facilities at the relevant loop capacity level (Self-Provisioning Trigger); or 2) where two or more unaffiliated competitive providers have deployed transmission facilities to the location and are offering alternative loop facilities to competitive LECs on a wholesale basis at the same capacity level (Competitive Wholesale Facilities Trigger). Although both triggers focus on whether there are two alternative loop providers at a particular customer location, they are different because the Competitive Wholesale Facilities Trigger can be satisfied by alternative loop providers that have deployed their own facilities *or* by alternative providers that are using unbundled network elements but otherwise satisfy the "wholesaling" requirement of the Competitive Wholesale Facilities Trigger. For example, unbundled dark fiber loops obtained from the incumbent LEC and activated by the alternative provider

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971 *See infra* Part VIII.D (discussing the transition process).

972 *See supra* Part V.E.2 (discussing the role of the states).

through attaching its own optronics to offer wholesale "lit" loop capacity may be used to satisfy the Competitive Wholesale Facilities Trigger to remove the unbundling obligation for DS3 and DS1 loops at a particular customer location. Unbundled dark fiber loops, however, may not be used to satisfy the Self-Provisioning Trigger. It is possible, however, that the Self-Provisioning Trigger could, in some circumstances, overlap with the Competitive Wholesale Facilities Trigger. On the other hand, the Competitive Wholesale Facilities Trigger will capture loop alternatives even where barriers have prevented competitive LECs from entirely deploying their own facilities[973] These triggers, tailored to respond to specific record evidence demonstrating that self-deployment is economically feasible or competitive alternatives are available at particular customer locations, will identify those locations where a more granular analysis is required to overcome the finding of impairment.[974]

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[973] *See infra* paras. 333, 340. Thus, while a particular customer location may not satisfy the Self-Provisioning trigger because one or both of the alternative providers "lights" unbundled dark fiber to self-provide loops to customers at that location, these providers could satisfy the Competitive Wholesale Facilities Trigger at that location to eliminate loop unbundling requirements.

[974] We establish the number of competitors to the incumbent LEC necessary to satisfy each trigger for high-capacity loops subject to a finding of impairment at two in order to ensure that multiple competitive entry at each location is feasible. *See USTA*, 290 F.3d at 427. Limiting our high-capacity loop triggers to only one competitor runs the risk of failing to accommodate unusual circumstances unique to that single provider that may not reflect the ability of other competitors to similarly deploy. Establishing a higher number, for example three, would likely render our high-capacity loop triggers meaningless for the many customer locations where the potential aggregate customer demand would never support more than two competitive alternatives to the incumbent LEC. Moreover, establishing the trigger at too high a number could discourage competitive buildout because would-be competitive facilities-based providers would know that two additional competitors would have to first

330. We establish the number of competitors to the incumbent LEC necessary to satisfy each trigger for high-capacity loops subject to a finding of impairment at two in order to ensure that multiple competitive entry at each location is feasible.[975] We choose a lower threshold for our high-capacity loops self-provisioning trigger than we did for the self-provisioning triggers for transport and switching (*i.e.*, two versus three) for two reasons. First, we are taking into consideration the more limited ability of the market to support multiple carriers providing their own loops to a particular location, compared to the demand available to support multiple carriers using their own self-provisioned transport and switching. Unlike both transport and switching, few customers can be served over a single loop facility, and the traffic of multiple customers is generally not aggregated over loops. Thus, establishing a higher number, for example three, would likely render our high-capacity loop triggers meaningless for the many customer locations where the potential aggregate customer demand would never support more than two facilities-based competitive alternatives to the incumbent LEC.[976] Second, we are concerned that this limited demand could provide a greater disincentive to build out any alternative loops if the trigger were set at three. The more limited demand for loops means that there is a lesser likelihood that a third competitive provider would build out to a particular location. This, in turn, creates a greater disincentive for the first and second providers to build out to the location, because if the trigger were set at three, they will likely have to compete against unbundled incumbent LEC

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deploy their own facilities before unbundled loop facilities at TELRIC-based prices would no longer be available at that location.

[975] *See USTA*, 290 F.3d at 427.

[976] Moreover, limiting our high-capacity loop triggers to only one competitor runs the risk of failing to accommodate unusual circumstances unique to that single provider that may not reflect the ability of other competitors to similarly deploy.

loop facilities at TELRIC-based prices for a significant period of time.

331. We choose these specific triggers because we find that: (1) evidence of actual deployment indicates barriers to entry can be overcome; and (2) the availability of competitive wholesale alternatives eliminates impairment for competitive LECs. Eliminating unbundling obligations where no impairment exists furthers the goals of the Act by ensuring that the availability of unbundled network elements at cost-based rates does not discourage the deployment of facilities by competitive LECs where such deployment is economically feasible.

(i) Self-Provisioning Trigger

332. *Trigger Defined.* Where two or more competitive LECs have self-provisioned loop transmission facilities, either intermodal[977] or intramodal facilities, to a particular customer location at the loop capacity level for which the state impairment analysis is being conducted, competitive LECs are not impaired without access to unbundled incumbent LEC loops at that capacity level at those particular customer locations.[978] This determination involves a finding that there are two competitive LECs that have existing facilities in place serving customers at that location over the

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[977] *See supra* Part V.B.1.d.(ii) (describing intermodal alternatives generally, and factors affecting differences in the extent to which various intermodal alternatives are considered); Part VI.A.3. *supra* (describing how intermodal alternatives are considered for loops generally); paras. 308-309 *supra* (describing how intermodal alternatives are considered for enterprise market loops).

[978] If two or more competitive LECs have been able to economically self-deploy at a particular location at the loop capacity level being considered by the state, based on information contained in the record, we determine that the barriers to self-deployment at that customer location for that loop capacity level are likely able to be similarly overcome by other competitive entrants.

relevant loop capacity level.[979] If the state commission makes a finding of no impairment based on the application of the Self-Provisioning Trigger, it is not necessary to separately apply the Competitive Wholesale Facilities Trigger.

333. *Trigger Applied.* In conducting its proceeding with respect to the Self-Provisioning Trigger, the state commission must verify that the two competitive providers identified to satisfy this trigger are unaffiliated with the incumbent LEC and each other.[980] In addition, the facilities these competitors use must be their *own facilities* and not facilities owned or controlled by one of the other two providers to the premises, *i.e.*, the incumbent LEC and the other competitive provider. To be clear, a competitive LEC using the special access facilities of the incumbent LEC or the transmission facilities of the other competitive provider in the building would *not* satisfy the definition of a self-provisioning competitor for purposes of satisfying the trigger. We find, however, that when a competitive carrier has obtained dark fiber on a long-term indefeasible-right-of-use (IRU) basis, that dark fiber facility can be counted as a separate, unaffiliated facility for self-provisioning determination purposes.[981]

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[979] For example in applying the Self-Provisioning Trigger to DS3 loops, the state commission must determine that two or more competitive LECs provide DS3 loops *over their own facilities* to customers at that particular customer location.

[980] We use the term affiliated and affiliate as the Act defines "affiliate." Section 3 of the Act defines the term "affiliate" as "a person that (directly or indirectly) owns or controls, is owned or controlled by, or is under common ownership or control with, another person. For purposes of this paragraph, the term 'own' means to own an equity interest (or the equivalent thereof) of more than 10 percent." 47 U.S.C. § 153(1).

[981] For purposes of the "own facilities" prong of the Self-Provisioning Trigger, a competitive carrier that has obtained dark fiber transmission facilities from the incumbent LEC on a long-term IRU basis will be considered to operate its own unaffiliated facilities. We believe that dark fiber IRU type contracts protect against short-term gaming by the incumbent LEC. Moreover, we do not want to foreclose incumbent

334. *Special Considerations For Dark Fiber and DS1 Loops.* When applying the Self-Provisioning Trigger to eliminate an incumbent LEC's requirement to unbundle dark fiber loops at a particular customer location, the mere existence of two unaffiliated competitive providers (in addition to the incumbent LEC) that have deployed fiber to that location, *whether or not they are offering dark fiber to other carriers to serve end-user customers at that location*, will satisfy the Self-Provisioning Trigger for dark fiber loops and require a finding of no impairment at that location. Therefore, we do not apply a wholesale trigger to unbundled dark fiber loops because such trigger would necessarily overlap with the Self-Provisioning Trigger.[982] Because there is little record evidence demonstrating that carriers construct facilities to serve customers exclusively at the DS1 level, as well as the lack of economic evidence showing such self-deployment is possible, the Self-Provisioning Trigger *will not* be applied to DS1 loops.

335. *State Analytical Flexibility.* In applying the Self-Provisioning Trigger to high-capacity loops, we find that actual competitive deployment is the best indicator that requesting carriers are not impaired, and therefore emphasize that this quantitative trigger is the primary vehicle through which non-impairment findings will be made. We recognize, however, that this high-capacity loop trigger measures only the existence of *actual* deployed competitive alternatives at a

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LECs from negotiating long term dark fiber leases with competitive LECs. To be clear, however, because we want to be certain of the independent ownership of the loop transmission facilities, we find that loop transmission facilities transferred on an IRU basis is limited only to dark fiber and does not include "lit" fiber IRUs obtained from the incumbent LEC or the other provider.

[982] Because dark fiber loops are not typically retail offerings like "lit" loops, it is necessary to modify somewhat the application of the Self-Provisioning Trigger for dark fiber loops to ensure that the granular state analyses include all those locations where at least two alternative carriers to the incumbent LEC have deployed fiber.

customer location rather than whether that particular customer location *could* be economically served by competitive carriers through deployment of alternative loop transmission facilities. Thus, when conducting its customer location specific analyses, a state must consider and may also find no impairment at a particular customer location even when this trigger has not been facially met *if* the state commission finds that no material economic or operational barriers at a customer location preclude competitive LECs from economically deploying loop transmission facilities to that particular customer location at the relevant loop capacity level. In making a determination that competitive LECs *could* economically deploy loop transmission facilities at that location at the relevant capacity level, the state commission must consider various factors affecting the ability to economically deploy at that particular customer location. These factors include: evidence of alternative loop deployment at that location; local engineering costs of building and utilizing transmission facilities; the cost of underground or aerial laying of fiber or copper; the cost of equipment needed for transmission; installation and other necessary costs involved in setting up service; local topography such as hills and rivers; availability of reasonable access to rights-of-way; building access restrictions/costs; availability/feasibility of similar quality/reliability alternative transmission technologies at that particular location.

336. In other circumstances, by contrast, state commissions may believe notwithstanding satisfaction of this trigger for a particular customer location, that continued access to unbundled loops at the capacity level under analysis should be maintained at the customer location because impairment, in fact, remains due to the existence of a barrier to further competitive facilities deployment at that location. An example of such a situation might be where a municipality has imposed a long-term moratorium on granting additional rights-of-way permits along the routes necessary to serve the

particular customer location.[983] In these circumstances, a state commission may file a petition for waiver with the Commission to maintain the incumbent LEC's unbundling obligation at that location until the barrier identified in the waiver petition no longer exists.

(ii) Competitive Wholesale Facilities Trigger

337. *Trigger Defined.* Where competitive LECs have two alternative choices (apart from the incumbent LEC's network) to purchase wholesale high-capacity loops, including intermodal alternatives, at a particular premises, we conclude that impairment does not exist at that location for that type of high-capacity loop.[984] Specifically, where the relevant state commission determines that two or more unaffiliated alternative providers, including alternative transmission technology providers that offer an equivalent wholesale loop product at a comparable level of capacity, quality, and reliability, have access to the entire multiunit customer premises, and offer the specific type of high-capacity loop over their own facilities on a widely available wholesale basis to other carriers desiring to serve customers at that location, then incumbent LEC loops at the same loop capacity level serving that particular building will no longer be unbundled.[985]

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[983] This example is provided for illustrative purposes only and is not meant to be exclusive or dispositive.

[984] For example, in applying the Competitive Wholesale Facilities Trigger to DS3 loops, the state must find that two alternative providers to the incumbent LEC offer wholesale DS3 loops to competitive LECs at that particular customer location.

[985] While the record indicates little evidence of wholesale DS1 loop capacity presently, evidence of some alternative providers at the DS3 and higher capacity levels suggests that there may be specific locations where competitive carriers have deployed fiber and might offer unused capacity at the DS1 loop level. Because we expect our loop unbundling rules to encourage greater facilities-based deployment where it is economically feasible, it is not unreasonable to accommodate the possibility that non-

Similar to including dark fiber IRUs as facilities that satisfy the "own facilities" prong of the Self-Provisioning Trigger,[986] dark fiber IRUs also satisfy the "own facilities" prong of the Competitive Wholesale Facilities Trigger. Furthermore, in addition to dark fiber IRUs, we also include the use of dark fiber obtained on any other lease/purchase basis, *including obtaining it from the incumbent LEC on an unbundled basis*,[987] as long as the alternative provider has attached its own optronics to "light" the dark fiber in order to make "lit" fiber loops available to competitive LECs on a wholesale basis.[988]

338. *Trigger Applied.* In evaluating the two competitive wholesale loop providers, states should not undertake a financial viability analysis with respect to each provider. However, there should be some reasonable expectation that these providers are operationally capable of continuing to provide wholesale loop capacity to that customer location.[989]

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incumbent LEC DS1 loop alternatives may be available now or in the near future at particular customer locations. By accommodating this possibility in the trigger mechanism we craft today, we seek to ensure that our DS1 loop unbundling rules are not in conflict with *USTA*.

[986] See *supra* note 981.

[987] By counting wholesale loop offerings over dark fiber UNEs, an incumbent LEC could be relieved of its unbundling obligation at a specific loop capacity level at certain customer locations even where no other "alternative" fiber has been deployed, but where alternatives to incumbent LEC unbundled "lit" loops are nevertheless available.

[988] Similarly, as we determine in our dark fiber transport requirements, when applying this trigger to dark fiber loop impairment, the state may ensure that dark fiber wholesalers have sufficient quantity of dark fiber available. *See infra* para. 416.

[989] We note that carriers operating under chapter 11 bankruptcy are still capable of providing service while they reorganize their operations. Relatedly, in the case of a chapter 7 liquidation, the physical transmission facility assets of a competitive provider will continue to exist at that location as the purchaser of those assets will likely provide similar wholesale service or use such facilities to self-provide retail service.

We recognize that, while the record indicates that there are presently a limited number of alternative wholesale loop providers serving multiunit premises, we anticipate that a competitive wholesale market will continue to develop, particularly where competitive LECs have already deployed fiber and seek to derive revenue from excess capacity. We expect this granular trigger to encourage alternative high-capacity transmission providers to deploy more facilities and offer them on a wholesale basis, creating a more robust competitive market for high-capacity loop facilities to many areas nationwide.

(iii) State Action Under Both Triggers

339. We expect states to complete their initial reviews applying the triggers and other analysis discussed above within nine months from the effective date of this Order. Unbundled DS1, DS3, and dark fiber loops will remain available to all customer locations until the state commission determines that unbundled loops at particular capacities serving specific customer locations are no longer required. States that conduct this review need only address specific customer locations for which there is relevant evidence in the proceeding that the customer location satisfies one of the triggers or the potential deployment analysis specified in this Part.[990] To the extent that a state commission does not complete its proceedings in this nine month period,[991]

Under either scenario, the triggers which resulted in a finding of no impairment at that location will continue to be met. *See infra* Part VI.C.4. (discussing similar financial viability issues with respect to wholesale transport providers).

[990] *See supra* para. 335.

[991] By "complete," we mean that a state commission, upon receiving sufficient evidence, has an affirmative obligation to review the relevant evidence associated with any customer location submitted by an interested party, and to apply the trigger and any other analysis specified in this Part to such evidence.

aggrieved parties may file a petition with this Commission demonstrating a state's failure to act pursuant to the procedures we outline today.[992] We expect that states will require an appropriate period for competitive LECs to transition from any unbundled loops that the state finds should no longer be unbundled.

340. After completion of their initial reviews, we expect state commissions to conduct further granular reviews, pursuant to the procedures the state commissions adopt, to identify additional customer locations that satisfy the triggers. Such proceedings shall be completed within six months of the filing of a petition or other pleading submitted in accordance with the prescribed state commission procedures.[993]

(e) Other Loop Unbundling Proposals.

341. Commenters have proposed various alternatives to the method we have adopted herein for conducting our loop impairment analysis and reaching our resulting conclusions. To the extent the methods we use and the conclusions we

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[992] As discussed above, if a state fails to act, we set forth procedures for the Commission to step into the role of the state. *See supra* Part V.E. (discussing the role of the states).

[993] Subsequent to the initial review, states have the flexibility to adopt reasonable and timely procedures for the periodic collection and evaluation of evidence indicating the satisfaction of the loop triggers at additional customer locations to remove unbundling obligations. For example, a state may decide to include self-reporting information regarding alternative loop deployment in an annual or semi-annual report, either as an independent obligation or as part of the competitive carriers' periodic filing obligations. Alternatively, a state may decide to accept evidence of alternative deployment through petitions filed during prescribed filing windows or through rulemaking proceedings. Regardless of the procedures adopted, however, states that conduct further reviews must complete their evaluation of the evidence and reach a determination within six months of the filing of a petition or other pleading filed pursuant to the state procedures.

reach differ from those proposed, we expressly decline to incorporate them herein. We note, however, that we agree with the proposals of SBC and other commenters that the Commission distinguish among loop types and make capacity-based distinctions. The analysis we have undertaken has, indeed, distinguished not only among the various loop capacities, *e.g.*, DS0, DS3, OCn, but also the type of loop technology where appropriate, *e.g.*, "lit" fiber, dark fiber, copper, as well as the customer market class typically served by such loops. Through our approach, we recognize the different economic characteristics of serving customers demanding services provided over different loop capacity levels, eliminating or limiting unbundling obligations accordingly.[994] We disagree with SBC,[995] Verizon,[996] and BellSouth[997] to the extent each proposes that we base our loop unbundling analyses and conclusions consistent with our special access pricing flexibility rules.[998] Evidence of competitive LECs' ability to self-deploy local loop facilities or have wholesale non-incumbent LEC alternative loop

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[994] As we have noted above, we expect that the triggers that we adopt today for use by the states will provide incumbent LECs substantial relief from their unbundling obligations while simultaneously ensuring that competitive carriers get unbundled high-capacity loop access only where they are unable to economically self-deploy or use alternative facilities. *See supra* para. 322.

[995] *See, e.g.*, SBC Comments at 101 (proposing a DS1 trigger at two or more fiber-based collocators, serving 15,000+ business lines, and $150,000 or more per month in special access revenues and no unbundling at all above the DS1 level).

[996] *See, e.g.*, Verizon Comments at 119-20 (proposing, generally, the elimination of high-capacity loop unbundling where the incumbent LEC has obtained pricing flexibility for special access circuits).

[997] *See, e.g.*, BellSouth Comments at 67 n.240 (stating it makes no sense to find impairment where BellSouth has obtained pricing flexibility for special access circuits).

[998] *See Pricing Flexibility Order*, 14 FCC Rcd at 14221.

facilities available to them is the proper inquiry in our loop impairment analysis. This analysis serves a host of statutory goals beyond the goal of the *Pricing Flexibility Order*, which is limited to protecting consumers from anticompetitive pricing. While each of these pricing flexibility proposals vary somewhat, they are consistent in arguing that wherever and whenever incumbent LECs have received pricing flexibility for special access services, unbundled high-capacity loops, to some degree, should not be required.[999] Incumbent LECs have received special access pricing flexibility in numerous MSAs throughout their regions, based almost exclusively on meeting the *Pricing Flexibility Order's* triggers based on special access revenues.[1000] As we note below in our transport unbundling analysis, because the special access revenue triggers require only a single collocated competitor to purchase substantial amounts of special access in a

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[999] Phase I pricing flexibility related to special access revenue is triggered on an MSA basis when wire centers accounting for at least 30% of (non-channel termination) special access revenues have at least one competitor that has collocated using non-incumbent transport. Phase II pricing flexibility related to special access revenues is triggered on an MSA basis when wire centers accounting for at least 65% of (non-channel termination) special access revenues have at least one competitor that has collocated using non-incumbent transport.

[1000] *See* Letter from Jake E. Jennings, NewSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98 at 2 (filed Dec. 12, 2002) (NewSouth Dec. 12, 2002 *Ex Parte* Letter) (describing details of where and how BellSouth has received special access pricing flexibility); *see also* BellSouth Oct. 15, 2002 Transport and Loop *Ex Parte* Letter, Attach. at 5 (stating that BellSouth has received Phase I and Phase II special access pricing flexibility in 100% of its national top 150 MSAs); Verizon Dec. 17, 2002 *Ex Parte* Letter at 7 (stating that Verizon has pricing flexibility in 37% of its wire centers); Letter from Cronan O'Connell, Vice President—Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 5 (filed Oct. 11, 2002) (Qwest Oct. 11, 2002 Transport *Ex Parte* Letter) (stating that Qwest has been granted pricing flexibility in 33 of its 45 MSAs, many of which are not national top 100 MSAs).

concentrated area, this test provides little, if any, indication that even that competitor has been able to widely, if at all, self-deploy alternative loop facilities in that area.[1001] Evidence of self-deployment of transport facilities is not necessarily evidence of the economic ability of a competitive LEC to self-deploy loops. Moreover, the presence of a single competitive LEC's collocated transport facility as a trigger for purposes of protecting consumers from anticompetitive pricing, *i.e.*, the purpose of our pricing flexibility rules, is not sufficient evidence that facilities-based competitive entry into a market at the local loop level is economically feasible. Under a special access pricing flexibility trigger, such as suggested by incumbent LECs, DS1 loops would no longer be unbundled in many large geographic areas nationwide. This conclusion would clearly contravene our unbundling mandate due to the pervasive competitive LEC impairment at the DS1 loop level resulting from an economic inability to self-deploy and limited available wholesale alternatives. Similarly, we reject geographic zone distinctions for analyzing impairment for high-capacity local loops.[1002] Like we find in rejecting a pricing flexibility approach, the record simply does not contain evidence that loop impairment/non-impairment determinations can be appropriately made on a zone basis due to the location-specific factors which impact impairment determinations at most high-capacity loop levels.

[1001] Covad Reply at 57-58 (arguing SBC's proposal of two or more fiber-based collocators is no indication that competitive networks serve any more than a limited number of buildings in the area, much less the wire center's entire service area).

[1002] Incumbent LECs argue that the Commission should consider geographic distinctions, such as MSAs or even individual wire centers, for some or all UNEs, where there are differing levels of alternatives. *See, e.g.*, BellSouth Reply at 11-12 (arguing that the appropriate geographic market for the impairment analysis is the MSA). Competitive carriers, however, argue that there is no geographic area or market anywhere in the United States today where a geographic consideration would find no-impairment for any UNE. *See, e.g.*, NuVox *et al.* Comments at 53.

342. Finally, several commenters argue that the Commission should remove or modify its unbundling obligations for incumbent LECs based on evidence of adequate incumbent LEC performance in provisioning network elements.[1003] These parties argue that incumbent LECs should be required to demonstrate certain levels of compliance with existing unbundling performance measurements, such as section 271 performance metrics, for a commercially reasonable period of time prior to any removal of an unbundling obligation.[1004] Commenters suggest such a rule would provide incentives to incumbent LECs to comply with their performance obligations.[1005] The record, however, does not reveal that incumbent LEC performance has a significant, if any, direct relationship to the ability of competitive LECs to economically self-deploy local loops. Rather, the record demonstrates that competitive LEC deployment is primarily driven by general economic considerations. While these economic considerations are influenced by factors which the incumbent LEC did not, or does not, similarly face, *i.e.*, its historical ability to maximize scale economies and benefit from first–mover advantages, these factors are not so related to performance measurement compliance that consideration of such compliance would inform our impairment analysis.

[1003] *See, e.g.*, CompTel Comments at 86-87; NARUC Comments at 10.

[1004] *See, e.g.*, CompTel Comments at 86-87; Maine CLEC Coalition Comments at 5-7; *see also* Pennsylvania Commissioner Wilson Comments at 8 (arguing that although the Commission should not remove unbundling obligations based on UNE or special access performance data, the states should have the authority to do so).

[1005] *Id.*

B. Subloops For Multiunit Premises Access and NIDs

1. Background

343. In the *Triennial Review NPRM*,[1006] the Commission sought comment on whether it should maintain unbundling requirements for subloops[1007] and NIDs.[1008] A subloop is a smaller included segment of an incumbent LEC's local loop plant, *i.e.*, a portion of the loop from some technically accessible terminal beyond the incumbent LEC's central office[1009] and the network demarcation point,[1010] including that portion of the loop, if any, which the incumbent LEC owns and controls inside the customer premises.[1011] The Commission's rules permit the demarcation point of the

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[1006] *Triennial Review NPRM*, 16 FCC Rcd at 22803, para. 48.

[1007] Subloops were first included in the list of specific UNEs in the *UNE Remand Order* as a means of providing competitive carriers "maximum flexibility to interconnect their own facilities" to various accessible points within the incumbent LEC's outside loop plant closer to a customer's premises. Subloops were defined as "any portion of the loop that is technically feasible to access at terminals in the incumbent LEC's outside plant, including inside wire." *UNE Remand Order*, 15 FCC Rcd at 3801, para. 234; *see also* 47 C.F.R. § 51.319(a)(2).

[1008] NIDs were included in the initial set of UNEs and defined as "a cross-connect device used to connect loop facilities to inside wiring." *Local Competition Order*, 11 FCC Rcd at 15697, para. 392. The Commission later modified the definition of a NID to be more flexible and technology neutral, recognizing that its rules enabled methods other than just a cross-connect device for interconnecting customer premises wiring with the incumbent LEC's loop distribution plant. *UNE Remand Order*, 15 FCC Rcd at 3790, para. 207; *see also* 47 C.F.R. § 51.319(b).

[1009] *UNE Remand Order*, 15 FCC Rcd at 3789, para. 206; *see also* 47 C.F.R. § 51.319(a)(2).

[1010] 47 C.F.R. § 68.3; *see also Competitive Networks Order*, 15 FCC Rcd at 23007, para. 54.

[1011] *UNE Remand Order*, 15 FCC Rcd at 3791, para. 210; *see also* 47 C.F.R. § 51.319(a)(2)(i).

incumbent LEC's network at a customer's premises to vary depending on the type of premises, *i.e.*, single unit or multiunit, and the date the premises was built.[1012] A competitor purchasing a subloop from an incumbent LEC to serve a particular customer location will access the incumbent LEC's loop along its distribution path at a technically feasible accessible terminal,[1013] generally, outside of the incumbent LEC's central office. These access points include, but are not limited to, a feeder distribution interface (FDI);[1014] a pole or pedestal;[1015] the MPOE;[1016] or the NID.[1017] The technically

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[1012] Section 68.105 of the rules govern the location of the incumbent LEC's point of demarcation. Specifically, in single unit premises the demarcation point is within 12 inches of the protector or, if no protector, within 12 inches of where the telephone wire enters the customer's premises. 47 C.F.R. § 68.105(c). For multiunit premises, depending on whether the premises existed prior to 1990 or was constructed thereafter, the incumbent LEC's demarcation point may be located at the MPOE or at some other point or points within the premises. *Id.* § 68.105(d). The MPOE is defined to be either the closest practicable point to where the wiring crosses a property line or the closest practicable point to where the wiring enters a multiunit building. *Id.* § 68.105(b). In multiunit premises where the demarcation point is not located at the MPOE, the incumbent LEC's network extends into the premises resulting in an inside wire subloop.

[1013] Accessible terminals contain cables and their respective wire pairs that terminate on screw posts which enables a competitor's technician to cross connect its terminal to the incumbent LEC's to access the incumbent LEC's loop from that point all the way to the end-user customer. *UNE Remand Order*, 15 FCC Rcd at 3789, para. 206 n.395.

[1014] The FDI is the point in the loop where the trunk line or "feeder" leading back to the incumbent LEC's central office, and the "distribution" plant branching out to the subscribers, meet, and interface. *UNE Remand Order*, 15 FCC Rcd at 3790, para. 206.

[1015] The pole or pedestal is near the customer premises and is the point where the "distribution" connects to the dedicated wire connecting the subscriber to the network. *UNE Remand Order*, 15 FCC Rcd at 3790, para. 206.

feasible points where subloops can be accessed can be further categorized as local loop plant consisting of customer premises wiring owned by the incumbent LEC as far as the point of demarcation (the "inside wire" subloop),[1018] and other portions of the loop from the central office to the point where the "inside wire" subloop begins. In this section, we address only subloops for access to multiunit premises, including the "inside wire" subloops.[1019] Furthermore, because the incumbent LEC's network demarcation point may be located at the NID, before the NID or beyond the NID,[1020] which is always located at the customer's premises, it is appropriate to discuss the NID together with the "inside wire" subloop.[1021]

[1016] The MPOE is the closest practicable point to where the wiring crosses a property line or the closest practicable point to where the wiring enters a multiunit building. *See supra* note 1012.

[1017] At whatever point a subloop is accessed, requesting carriers gain access to the loop from that point up to, and including, the demarcation point of that loop. An incumbent LEC charge for that subloop should reflect a single rate up to the point of termination, including the NID if it is before or at the point of termination.

[1018] *See* 47 C.F.R. § 51.319(a)(2)(i).

[1019] We consider other types of subloops in the context of our loop unbundling rules. *See supra* Part VI.A.4.a.(v).

[1020] *UNE Remand Order*, 15 FCC Rcd at 3774, para. 169.

[1021] In using the phrase "inside wire" to define a discrete subloop within the incumbent LEC's local loop, we are cognizant of the fact that prior to the addition of the subloop to the list of UNEs in 1999, the term "inside wire" generally was thought to refer only to that deregulated portion of wiring within an end-user customer's premises that connected the customer premises equipment (CPE) to the incumbent LEC's telephone network or other CPE and was not part of the incumbent LEC's regulated network, because it was located on the customer's side of the demarcation point. In the *UNE Remand Order*, the Commission recognized that its rules regarding the location of the demarcation point, particularly in multiunit buildings, resulted in situations where the incumbent LEC owned and controlled wire within a customer premises that did, indeed, remain part of the incumbent LEC's regulated network.

The Commission referred to this wire as "inside wire" also. *See* 47 C.F.R. § 51.319(a)(2)(i). The *UNE Remand Order* made clear that this "inside wire" was not limited only to wire that was physically inside the premises but may be located out-of-doors for many multiunit premises, for example, as may be the case in a garden apartment or campus environment. *See UNE Remand Order*, 15 FCC Rcd at 3774, para. 170. Similarly, in the *UNE Remand Order*, we noted that our use of the phrase "customer premises" encompassed not just the actual premises of end-user subscribers, but also the premises of the property owner such as "a landlord, a condominium, a university and so on," *i.e.*, "customer premises" encompassed any premises where the owner of that premises has the right to designate the MPOE. *See* 47 C.F.R. § 68.105(b).

We acknowledge that our previous use of the phrase "inside wire" to describe three different scenarios involving premises wiring, *i.e.*, (1) the unregulated wire on the end-user side of the demarcation point; (2) the wiring from the MPOE up to the end-user customer suite that may be under the control of the premises owner when the incumbent LEC's demarcation point is located at the MPOE; and (3) the customer premises wire that extends beyond the MPOE to the demarcation point of the incumbent LEC's network that remains under the incumbent LEC's control if the premises owner has not exercised its right to have the demarcation point and the MPOE coincide, may cause some confusion as noted by BellSouth. *See* BellSouth Petition for Reconsideration and Clarification, CC Docket No. 96-98 at 1-4 (filed Feb. 17, 2000) (BellSouth Feb. 17, 2000 Petition for Reconsideration); BellSouth Comments at 76. For this reason, we will refer to the "inside wire" on the incumbent LEC network side of the demarcation point, *i.e.*, between the MPOE and the demarcation point as the Inside Wire Subloop. We decline to define this wiring as "intra-building network cabling" as requested by BellSouth, *see* BellSouth Feb. 17, 2000 Petition for Reconsideration at 3, as that definition, which is found in Part 32 of the rules and used for accounting purposes, potentially limits the definition of the "Inside Wire Subloop." Part 32 defines "intra-building network cable" as follows: "This account shall include the original cost of cables and wires located on the company's side of the demarcation point or standard network interface inside subscribers' buildings or between buildings on one customer's same premises. Intra-building network cables are used to distribute network access facilities to equipment rooms, cross-connection or other distribution points at which connection is made with customer premises wiring." 47 C.F.R. § 32.2426(a). While we deny BellSouth's request, we have addressed herein the potential confusion that may have previously arisen in using the phrase "inside wire" to describe different portions of

344. In the *Local Competition Order*, the Commission declined to identify particular subloop elements as separate UNEs, because the record at that time did not sufficiently address the technical issues raised by the incumbent LECs as impediments to subloop unbundling.[1022] The Commission acknowledged that subloop unbundling could provide competitors flexibility in deploying portions of their own loop facilities and promised to revisit subloop unbundling at a later time.[1023] In the *UNE Remand Order*, however, the Commission determined that competitive LECs would be impaired without access to the incumbent LECs' subloops.[1024] The Commission found that access to subloops was likely to be the catalyst to the eventual deployment of competitive loops and without such access competitive LEC's would be discouraged from attempting to construct their own feeder facilities which, when combined with the incumbent LEC's distribution plant, would enable the competitor to serve customers with minimal reliance on the incumbent LEC.[1025] Specifically, subloop unbundling was adopted to redress three particular requesting carrier deployment impairments identified in the record at that time: 1) the need to interconnect with the incumbent LEC's network at or near customer premises to serve customers in multiunit premises;

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the premises wiring by defining the wiring that remains part of the incumbent LEC's network at a multiunit premises as the Inside Wire Subloop. The rules we adopt today with respect to the Inside Wire Subloop are not intended to impact or otherwise modify any aspect of our existing rules regarding the inside wire on the non-network side of the demarcation point, either inside the subscriber's suite or under the control of the premises owner as set forth in sections 68.100 *et seq.* *Id.* § 68.100 *et seq.*

1022 *Local Competition Order*, 11 FCC Rcd at 15695-96, paras. 390-91.

1023 *Id.* at 15696, para. 391.

1024 *UNE Remand Order*, 15 FCC Rcd at 3789, para. 205.

1025 *Id.*

2) the need to provide service to customers served by IDLC loops; and, 3) the need to access the copper portion of a loop to offer competitive xDSL service.[1026]

345. In ordering the unbundling of subloops, the Commission gave particular attention to unbundled inside wire subloops, specifically recognizing the impairments associated with facilities-based entry in multiunit buildings or campus environments.[1027] Indeed, the inside wire subloop was the only subloop for which the Commission devoted a separate subsection of its subloop rules.[1028] The Commission concluded that "requiring competitive LECs to convince landlords and customers to permit construction of redundant inside wiring would substantially impede market entry and competition."[1029] In addition, it found that lack of access to the inside wire subloop would impede facilities-based carriers' ability to develop their own networks which, once developed, could eventually lead to the elimination of the loop element from unbundling obligations.[1030]

346. Similarly, in the *Local Competition Order*, the Commission ordered the unbundling of the NID, finding that competitors deploying their own loops must be able to interconnect those loops to customer premises wiring in order to provide service using their own facilities, especially to

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[1026] *See id.* at 3792-95, paras. 215-18.

[1027] *See id.* at 3793, para. 216.

[1028] *See* 47 C.F.R. § 51.319(a)(2)(i). When the first Inside Wire Subloop rules were adopted in 1999, the Commission had commenced a related rulemaking proceeding, the *Competitive Networks* proceeding, to address, generally, barriers, including access to all types of customer premises wiring, which competitive LECs faced in gaining access to end-user customers in multiunit buildings or other environments where the premises occupied by the end-user customer was in a building owned or controlled by another. *See Competitive Networks*, 15 FCC Rcd at 22983.

[1029] *See UNE Remand Order*, 15 FCC Rcd at 3793, para. 216.

[1030] *Id.* at 3792, para. 215.

customers in multiunit buildings.[1031] In the *UNE Remand Order*, the Commission broadened the definition of the NID to encompass any means of interconnection of the incumbent LEC's distribution plant to customer premises wiring and to require that incumbent LECs permit a competitor to connect its own loop facilities to customer premises wiring through the incumbent LEC's NID if desired.[1032] The Commission declined to include the NID in the definition of the loop, or any other subloop element, emphasizing its intent to provide competitors flexibility in where they can access the subloop.[1033] Together, the subloop and NID unbundling rules recognize the necessity of these UNEs to overcoming existing impairments with respect to accessing customer premises wiring to provide competitive local services to customers desiring to take such services, particularly for facilities-based loop providers, in multiunit premises.[1034]

2. Subloops For Multiunit Premises Access

347. We limit our analysis herein to only those subloops associated with access to premises wiring at or near a

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[1031] *Local Competition Order*, 11 FCC Rcd at 15697, para. 392.

[1032] *UNE Remand Order*, 15 FCC Rcd at 3802, para. 237; *see also* 47 C.F.R. § 51.319(a)(2).

[1033] *Id.*

[1034] *See UNE Remand Order*, 15 FCC Rcd 3793, para. 216 ("a facilities-based provider's ability to offer service in a multi-unit building or campus may be severely impaired if it must install duplicative inside wiring . . . requiring landlords and customers to permit the construction of redundant inside wiring could substantially impede market entry and competition"); *see also id.* at 3801, para. 232 ("the record indicates that requiring a requesting carrier to self-provision NIDs for all customers it seeks to serve would materially raise the cost of entry, delay broad facilities-based market entry and materially limit the scope and quality of competitors service offerings.")

multiunit customer premises.[1035] Parties submitting comments on subloops, other than subloop access at remote terminal locations, do so almost exclusively in the context of multiunit premises.[1036] We, therefore, limit our focus accordingly. To the extent parties address unbundled subloop access unrelated to multiunit premises, *e.g.*, access at remote terminals for the purpose of accessing IDLC loops or to provide xDSL services, we consider those subloop issues in the context of our loop unbundling rules.[1037] We conclude that requesting carriers are impaired without access to unbundled subloops associated with accessing customer premises wiring at multiunit premises.[1038] Based on evidence in the record, we

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[1035] We include within the definition of the subloops for which we require unbundled access, not only the Inside Wire Subloop, but also any other loop-accessible terminal *at, or near*, a multiunit customer premises where, as a result of the incumbent LEC's network architecture, a requesting carrier may need subloop access to utilize the Inside Wire Subloop or NID to reach the end user. These subloop unbundling rules seek to encompass the various other network configurations that may occur at a multiunit premises when the demarcation point, the MPOE, and the NID are not all located at the same point, *e.g.*, in the basement utility room of the particular building to be served. The Commission has defined "multiunit premises" in section 68.105 of the rules. *See* 47 C.F.R. § 68.105 (multiunit premises include but are not limited to, residential, commercial, shopping center and campus situations).

[1036] *See, e.g.*, WorldCom Comments at 119-120; ALTS *et al.* Comments at 48; Sprint Comments at 30; AT&T Reply at 176.

[1037] *See supra* Part VI.A.4.a.(v). Specifically, because these other types of subloop access arise in the context of serving customers typically associated with the mass market over DS0 level mixed copper/fiber loops, we address them in the Mass Market loop impairment analysis. We note that the subloop unbundling rules adopted in this section are not intended to modify or otherwise change any aspect of the loop or subloop unbundling rules we also adopt today except to the extent expressly indicated.

[1038] We noted in the *UNE Remand Order*, for example, that the FDI which is the meet point between the feeder trunk line leading back to the central office and the "distribution" plant to the subscriber may be located

find that the barriers faced by requesting carriers in accessing customers in multiunit premises are not unique to customers typically associated with the enterprise market residing in such premises but extend to all customers residing therein, including residential or other tenants typically associated with the mass market.[1039] Thus, we, expressly require subloop unbundling to reach all customers residing in multiunit premises.[1040] The use of unbundled subloops to access customers in multiunit premises is also not limited by the type or capacity of the loop the requesting carrier will provide.[1041]

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in a utility room in a multiunit premises and the loop may go directly from the feeder to the inside wire. In this scenario, under the rules we adopt today, unbundled access to the FDI would be required as a subloop necessary to access the inside wire in the building. *See UNE Remand Order*, 15 FCC Rcd at 3790, para. 206 & n.398. Similarly, any other network configuration whereby access to the incumbent LEC's network in or near the multiunit premises facilitates access to the Inside Wire Subloop or other inside wire at the premises must be unbundled. In other words, any other technically feasible access point to these subloops, including but not limited to, the pole or pedestal, the NID, the MPOE, and the SPOI must be provided on an unbundled basis.

[1039] *See, e.g.*, AT&T Reply at 174-77 (incorporating by reference its March 8, 2002 Comments in WT Docket No. 99-217, *Competitive Networks*); WorldCom Oct. 25, 2002 Building Access *Ex Parte* Letter at n.21 (incorporating by reference multiple documents discussing these and related issues); ALTS *et al.* Comments at 48 n.118 (incorporating into record SBPP Mar. 8, 2002 Comments in *Competitive Networks*).

[1040] Competitive LECs serving customers residing in multiunit premises typically associated with the mass market face the same economic and operational barriers as serving customers residing in multiunit premises typically associated with the enterprise market.

[1041] While we recognize impairments related to multiunit premises access as one of a number of factors considered in crafting our unbundling rules for high-capacity loops, we accord substantially greater weight to these impairments with respect to subloop unbundling for multiunit premises access. We recognize that carriers seeking to provide all types of loop capacities to end users in these premises may encounter these impairments on an equal basis. For example, in a building where unbundled DS3 loops from the incumbent LEC are no longer required

348. We find that competitive carriers are impaired on a nationwide basis[1042] without access to unbundled subloops used to access customers in multiunit premises.[1043] Because of their prior exclusive access, incumbent LECs have first-mover advantages with respect to access to customers in multiunit premises. Requesting carriers face many barriers in accessing customers in multiunit premises, including a general prohibition against facilities-based access; prohibitive sunk costs associated with rewiring a building to serve potentially only a single customer; the refusal for reasonable access to the existing premises wiring; or the refusal to allow installation of the carrier's own new wiring. Subloops associated with access to multiunit premises have economic characteristics similar to loops generally, *i.e.*, they are extremely time-consuming and expensive to duplicate on a

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because such capacity has met the self-provisioning or available wholesale alternatives trigger, the availability of such capacity *to* the building does not correlate to the ability to take that capacity *up through the* building to the floor or suite of a customer to be served. *See, e.g.*, AT&T Reply at 176 (describing "fiber to the floor" limitations). Thus, to be clear, unbundled subloops for multiunit premises access are available to requesting carriers irrespective of the capacity level or type of loop such carrier will provide to its customer at that premises. We note that existing premises wiring may often be suboptimal for provisioning higher capacity loops depending on the age of the wiring. Ideally, in these circumstances, competitive carriers prefer to install new wiring *if, and when*, they are permitted.

[1042] We note that some states have adopted rules that address various aspects of multiunit tenant access by competitive LECs. *See, e.g.*, Order Establishing Statewide Policy for MDU Access, Application No. C-1878/PI-23, (Neb. P.S.C. Mar. 2, 1999); Conn. Gen. Stat. § 16-2471 (1997); 16 Tex. Admin. Code § 26-129 (Sept. 7, 2000); Mass. DTE 98-36-A. These rules vary widely in scope and application and we have little evidence that that these provisions sufficiently mitigate the barriers to multiunit premises access associated with our subloop impairment finding.

[1043] *See* NuVox *et al.* Comments at 70 ("[n]o 'changed circumstances' have developed over the past two years that would support or justify removal of . . . subloops or NIDs from the national UNE list.").

pervasive scale and self-provisioning can be prohibitively costly.[1044] As explained above, the loop itself can be overwhelmingly difficult for competitors to self-deploy due to the sunk and fixed costs associated with entry. Many types of loops continue to represent an enduring "last-mile" bottleneck.[1045] Finally, the record reflects that no third-party wholesale alternatives to these subloops are available.[1046] Our findings regarding impairment with respect to subloops to serve multiunit premises, is consistent with our findings regarding loops, generally.[1047] Failure to recognize these barriers and their substantial preclusive effect on the ability of facilities-based entry to multiunit premises undermines the objectives of our unbundling mandates. For all requesting carriers, especially carriers constructing facilities-based networks, the ability to access subloops at, or near, the customer's premises in order to reach the infrastructure in those premises where they otherwise would not be able to take their loop the full way to the customer, is critical.[1048]

349. In reaching our conclusion, we note that no commenter, including incumbent LECs, argue that subloops associated with accessing wiring at multiunit premises, generally, should be removed from the list of UNEs.[1049]

[1044] *See id.* at 81-82; ALTS *et al.* Comments at 46.

[1045] *See supra* Part VI.A.4.

[1046] *See* NuVox *et al.* Comments at 81-82.

[1047] *See supra* Part VI.A.4.

[1048] *See* GCI Comments at 44; Sprint Comments at 30; ALTS *et al.* Comments at 46.

[1049] *See* GCI Comments at 43-44 (discussing the fact that a competitive LEC is impaired without access to the loop or subloop because constructing loop facilities is not a viable alternative to unbundling; there are no economically feasible alternative sources available; and even GCI, who is constructing its own loop facilities, is years away from being able to do it on a widespread basis); ALTS *et al.* Comments at 46-47 (asserting that the Commission should continue to

Indeed, one incumbent LEC states that it has not incurred large burdens or increased costs in having subloops defined as UNEs and doubts if it has been a burden for other LECs either.[1050] We acknowledge that the record contains some evidence that competitor's use of subloop UNEs, to date, has been limited.[1051] We agree that this is largely the result of the fact that competitive carriers have relied more heavily on entry methods such as loops in combination with switching or stand-alone loops which take them all the way to the end-user customer, even in multiunit premises, rather than self-provisioning facilities-based networks, including loop plant, to the customer's premises. We expect that, collectively, the unbundling rules we adopt today will both facilitate and encourage facilities-based provisioning and, thus, lead to a greater demand for these unbundled subloops in the future. Accordingly, we seek to ensure that those carriers that self-

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require unbundled access to subloops for the same reasons it must continue to provide unbundled access to loops; access to the subloop remains crucial to competitive LECs who self-provision parts of their networks and need access to discrete portions of the loop); Sprint Comments at 30; BellSouth Comments at 74-76; *see also* Supra Comments at 9; Texas Commission Reply at 12; California Commission Comments at 17. We note, however, that BellSouth and Verizon take issue with the way multiunit premises subloop access at a SPOI has been required. *See* BellSouth Feb. 17, 2000 Petition for Reconsideration at 4-5; Bell Atlantic Petition for Reconsideration and Clarification, CC Docket No. 96-98 at 13-15 (filed Feb. 17, 2000) (Verizon Feb. 17, 2000 Petition for Reconsideration). We address subloop access through a SPOI below. *See infra* note 1058. Other parties argue, generally, that the Commission should retain its entire currently-specified list of unbundled elements including subloops. *See, e.g.*, Rural Independent Competitive Alliance Comments at 2; Illinois Commission Comments at 5; GSA Comments at 5; Pennsylvania Office of the Consumer Advocate *et al.* Comments at 19-22.

[1050] *See* Sprint Comments at 30; *see also* Qwest Comments at 45-46 (suggesting the continued availability of subloops in arguing against unbundling for advanced services).

[1051] *See* Sprint Comments at 30.

deploy loops are able to access the last few feet necessary to serve the end-user customer residing in a multiunit premises.

350. Finally, our previous subloop unbundling rules contained a provision stating that access to the subloops is subject to the Commission's collocation rules.[1052] This provision was included to facilitate remote terminal access particularly for accessing IDLC loops and copper loop portion for xDSL service.[1053] The record indicates that this provision may have been interpreted to require either that a requesting carrier establish collocation as its chosen method of interconnection pursuant to section 51.321 of our rules[1054] in order to obtain a subloop, or that the requesting carrier must establish a collocation arrangement at the specific point it accesses the subloop, including those subloops associated with multiunit premises access.[1055] The rules we adopt today make clear that *no* collocation requirement exists with respect to subloops used to access the infrastructure in multiunit premises. Incumbent LECs are required to provide subloops to access multiunit premises without collocation.[1056] Competitive carriers are able to access these subloops at any

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[1052] 47 C.F.R. § 51.319(a)(2)(iv).

[1053] *See UNE Remand Order*, 15 FCC Rcd at 3794-3800, paras. 218-29.

[1054] 47 C.F.R. § 51.321(b).

[1055] The record contains evidence that at least one incumbent LEC imposes a collocation requirement on requesting carriers ordering subloops at multiunit premises. *See* Letter from J.G. Harrington, Counsel for Cox Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Dec. 19, 2002) (discussing issues associated with accessing multiunit premises wiring) (Cox Dec. 19, 2002 *Ex Parte* Letter).

[1056] This is not to suggest that a requesting competitive LEC and an incumbent LEC may not agree that some method of "collocating" a competitor's terminal to cross-connect with the incumbent LEC's terminal at a subloop access point at a multiunit premises is desirable, taking into account space availability.

technically feasible terminal point at or near the building *in any technically feasible* manner.[1057] This will provide facilities-based competitors the greatest flexibility in designing their networks and most efficiently accessing these subloops only at the point necessary.[1058]

[1057] To the extent there is disagreement with respect to what is "technically feasible" with respect to subloop access at a multiunit premises, this issue is left to the state in the context of particular interconnection arrangements pursuant to section 252 of the Act, which can take into account the particular incumbent LEC's network architecture as well as the requesting carrier's network. *See UNE Remand Order*, 15 FCC Rcd at 3797, para. 224. Once a state determines that it is technically feasible to unbundle a subloop at a particular point, an incumbent LEC shall have the burden of demonstrating that it is not technically feasible to unbundle its own loop at that point. WorldCom requests clarification that state determinations of "technically feasible" subloop unbundling may occur in state proceedings that are not limited solely to section 252 arbitration proceedings, but may include other state proceedings conducted pursuant to and consistent with section 252 of the Act. We agree that this is an important clarification and therefore reflect it in our rules. *See* MCI WorldCom Feb. 17, 2000 Petition for Clarification at 20-21.

[1058] In requiring unbundled subloops at, or near, a multiunit premises for access to the wiring at the premises, including Inside Wire Subloops, we note that our current requirement relating to the incumbent LEC's obligation to construct a single point of interconnection (SPOI) at multiunit premises locations for access to these subloops requires the incumbent LEC to construct a SPOI even where it has no facilities into the premises. We agree with BellSouth that if an incumbent LEC has no facilities which it owns, controls or leases at a multiunit premises through which it serves, or can serve, customers at such premises, it should not be obligated to construct an SPOI. *See* BellSouth Feb. 17, 2000 Petition for Reconsideration at 4-5. Thus, we grant that portion of BellSouth's petition requesting that we limit the incumbent LEC's obligation to construct a SPOI to only those multiunit premises where the incumbent LEC has distribution facilities to that premises and either owns, controls, or leases the inside wire at the multiunit premises, including the Inside Wire Subloop, if any, at such premises. We further clarify as requested by BellSouth that the incumbent LEC's obligation to build a SPOI for multiunit premises only arises when a requesting carrier indicates that it

a. Inside Wire Subloops and NIDs.

351. We find that requesting carriers continue to be impaired on a nationwide basis without unbundled access to the incumbent LEC inside wire subloops and NIDs. The record conclusively supports our determination that inside wire subloops and NIDs should be unbundled. The economic impairment competitive LECs face, generally, with respect to most loops is exacerbated through the outright barriers they face in gaining access to customers from owners of multiunit premises. This impairment is especially problematic in situations where competitors are able to construct and

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intends to place an order for access to an unbundled subloop network element via a SPOI. *See* BellSouth Feb. 17, 2000 Petition for Reconsideration at 4-5; *see also* BellSouth Comments at 75.

In clarifying the rules we adopt today regarding the extent of an incumbent LEC's obligation to construct a SPOI, we deny Verizon's request to eliminate the SPOI requirement. *See* Verizon Feb. 17, 2000 Petition for Reconsideration at 13-15. Verizon claims a SPOI rule requires it to construct a new network element. A SPOI is a means of interconnection with a network element, rather than part of the network element. We locate our authority to require the SPOI in the section 251(c)(2) requirement that incumbent LECs provide interconnection "at any technically feasible point within the carrier's network. *See* 47 U.S.C. § 251(c)(2). We reject the argument advanced by Verizon that the SPOI requirement is inconsistent with either section 251(c)(2) of the Act or the Eighth Circuit's decision in *Iowa Utils. Bd.* The Eighth Circuit endorsed the Commission's statement that "the obligations imposed by sections 251(c)(2) and section 251(c)(3) include modifications to incumbent LEC facilities to the extent necessary to accommodate interconnection or access to network elements." *Iowa Utils. Bd.*, 120 F.3d at 813 n.33. Section 251(c)(2) expressly requires incumbent LECs to provide interconnection "at any technically feasible point" and the Eighth Circuit held that, pursuant to section 251(c)(2), incumbent LECs must modify their networks to accommodate interconnection and access to UNEs. Thus, incumbent LECs are under a continuing obligation to accommodate technically feasible methods of interconnection, including modifying their networks to do so, and the Eighth Circuit's decision does not relieve incumbent LECs of the requirement to construct a SPOI necessary to accommodate subloop access at multiunit premises.

provision a local loop using their own facilities all the way to a customer premises, yet still remain unable to reach the end user in that premises.[1059] If competitors can only get as far as the building or property line MPOE with their own facilities because they are prohibited from installing their own customer premises wiring to reach a customer at that premises, the incumbent LEC's inside wire subloop or NID may be the exclusive means of reaching an end user. Often, there is no alternative inside wiring other than the incumbent LEC's available at the premises.[1060] In cases where customer premises wire is not part of the incumbent LEC's network, hence not an inside wire subloop, the NID may be the sole means of accessing this customer premises wire.

352. We note that the *Triennial Review NPRM* raised the issue of whether the NID is appropriately considered part of the loop when a competitor requests access to the loop or a subloop.[1061] We have previously declined to include the NID as part of the loop[1062] in adopting subloop unbundling rules, yet we have recognized that the loop network element does, indeed, include the NID functionality when an end-to-end loop is provided.[1063] Under the rules we adopt today, we identify at least three scenarios where competitive LECs are impaired without access to the NID functionality: (1) access

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[1059] Owners of multiunit premises have no nationwide obligation to provide competitive LECs reasonable and nondiscriminatory access to their premises on the same terms that the incumbent LEC has access. This often includes the ability to timely and economically install customer premises wiring and other necessary facilities (including the NID functionality) to reach end-user customers. *See infra* para. 353.

[1060] *See, e.g.*, Letter from John T. Nakahata, Counsel for GCI, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, 01-318, 98-56, 98-141, Attach. at 7 (filed Jan. 15, 2003).

[1061] *Triennial Review NPRM*, 16 FCC Rcd at 22803, para. 48 n.110.

[1062] *UNE Remand Order*, 15 FCC Rcd at 3802, para. 235.

[1063] *Line Sharing Order*, 14 FCC Rcd at 20923, para. 17 n.29.

to a stand alone unbundled NID; (2) access to the NID functionality as a component of an unbundled end-to-end loop or a subloop and (3) access to the NID to utilize the inside wire subloop. We note that different incumbent LEC network configurations determine where the NID occurs in each of the three scenarios[1064] and we specify the incumbent LEC's unbundling obligations with respect to each of these scenarios.

353. First, we require the NID to be offered as a separate UNE for requesting carriers requiring only stand alone NID access. Incumbent LECs are required to provide unbundled access to the NID on the incumbent LEC's network side on a stand-alone basis to permit a requesting carrier to connect its own loop facilities to the premises wiring at any customer location.[1065] The incumbent LEC's NID in this case provides

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[1064] For example, the NID can mark the end of the loop, hence, the end of the incumbent LEC's network. The NID can also be within the loop at a multiunit premises if the incumbent LEC's network extends into the building beyond the MPOE; in this case the NID can be characterized as part of a subloop. Similarly, competitive LEC's may need unbundled access to the NID on the incumbent LEC's network side to utilize wiring in the building that is not part of the incumbent LEC's network, or they may need only one time contact with the incumbent LEC's NID on the customer's side of the NID to disconnect the customer's dedicated wiring and reconnect it to the competitive LEC's own NID if the competitive LEC has installed its own NID. In this latter case, the competitive LEC's contact with the NID on the customer side does not constitute access to an incumbent LEC's UNE and the competitive LEC should neither incur a charge from the incumbent LEC associated therewith nor can the incumbent LEC require the presence of one of its technicians.

[1065] For example, a competitor will generally need access to the NID on a stand-alone basis on the incumbent LEC's network side of the NID when the competitive LEC is provisioning its own loops to the premises; the NID and the demarcation point are located at the MPOE; and the wiring in the premises is not part of the incumbent LEC's network. In this scenario, accessing the incumbent LEC's NID on the network side enables the competitor to directly access the premises wiring to serve its customer either because the competitor has been prevented from installing its own

a critical and necessary element to enable the competitor to reach its customer and a UNE-based rate for this access is appropriate. Second, when a requesting carrier requests access to an unbundled local loop or subloop to reach a customer, the NID functionality is an included component of that loop or subloop, and must be provided to the requesting carrier as such.[1066] In this case the incumbent LEC should not

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NID and duplicative premises wiring, or the cost of doing so to serve a single customer is prohibitively expensive. Verizon opposes a requirement that permits competitive LECs to connect their loops directly to the incumbent LEC's NID because of the risk of overvoltage. Verizon Feb. 17, 2000 Petition for Reconsideration at 11-13. We reject Verizon's argument that requesting carriers be denied direct access to the NID because of the risk of overvoltage. The record does not support a finding that overvoltage is a likely occurrence at NIDs because competitive LECs generally deploy fiber loops, which will ground in the terminating box rather than the NID. *See* WorldCom Comments in Response to Verizon Feb. 17, 2000 Petition for Reconsideration at 10-11 (Prevalence of fiber loops deployed by requesting carriers and the spare grounding terminals at incumbent LEC NIDs guard against overvoltage); *see also* AT&T Comments In Response to Verizon Feb. 17, 2000 Petition for Reconsideration at 12; MediaOne Comments in Response to Verizon Feb. 17, 2000 Petition for Reconsideration at 2; Sprint Comments in response to Verizon Feb. 17, 2000 Petition for Reconsideration at 9 (it is technically feasible for requesting carriers to connect their loops directly to incumbent LEC NIDs). Where a requesting carrier may deploy copper, incumbent LECs can require requesting carriers interconnecting at the NID to take appropriate steps to properly secure displaced or turned-back wiring, such as taping the ends of the wire, or attaching the displaced wire to spare terminals within the NID, through interconnection arrangements. We therefore deny Verizon's petition with respect to enabling competitive LECs to directly connect their loops to the incumbent LEC's NID. *Id.*

[1066] For example, a competitive LEC ordering a full loop or a subloop at some accessible point before the loop reaches the customer premises wiring will be doing so because it is unable to otherwise reach its customer. In this scenario, ordering the loop or subloop is intended to take the competitor all the way to the customer. Because the NID is the functionality that connects the distribution plant to the customer premises wiring it is part of that loop and must be provisioned as such. Depending again on where the incumbent LEC's network demarcation point is

impose a separate charge for the NID functionality as it should be included in the unbundled loop or subloop charge. Similarly, in network configurations where the NID does not coincide with the termination point of the incumbent LEC's network at a multiunit premises, *i.e.*, the demarcation point, and a portion of the loop extends beyond the NID, a competitor accessing the NID for the purpose of connecting to the incumbent LEC's inside wire subloop is entitled to the NID functionality as part of the inside wire subloop.[1067] Finally, we note that in scenarios where a competitive LEC has constructed its own NID at a premises and needs only to make contact with the incumbent LEC's NID to disconnect the customer's wiring from the incumbent LEC's NID and reconnect it to the competitive LEC's NID, the competitive LEC is *not* accessing or using the incumbent LEC's NID on an unbundled basis and no associated incumbent LEC charge may be imposed on the competitive LEC.[1068]

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located at the premises, the NID may either mark the end of the loop or be at some point within the loop before the demarcation point. One commenter suggests that competitive LECs ordering an end-to-end loop (or subloop) to reach a customer should have the NID functionality included in the loop *without a separate charge. See* AT&T Comments at 162. We agree and expect that the NID rules we adopt today make that clear going forward. In the unlikely event that a competitive LEC does not need the NID at a location where it orders an unbundled loop or subloop that includes the NID functionality, this scenario should be accommodated through a separate negotiation.

[1067] In buildings where the incumbent LEC has not located the demarcation point at the MPOE and its network extends into the building, the NID may nevertheless be located at the MPOE. In this scenario, a competitor may need access to that NID to gain access to the Inside Wire Subloop. .Since the NID would not mark the end of the incumbent LEC's network in this scenario, accessing the Inside Wire Subloop at the NID would provide the NID functionality for that subloop.

[1068] *See* AT&T Comments at 162.

(i) Inside Wire Subloop Impairment

354. We require incumbent LECs to unbundle the inside wire subloop. We conclude that a finding of impairment for the inside wire subloop removes a disincentive for competitors to deploy their own loop infrastructure. Without unbundled access to the inside wire subloop, a facilities-based competitor could conceivably construct an entire facilities-based network with no reliance whatsoever on the incumbent LEC's network elements, and still be unable to reach an end user in a multiunit premises or campus-type environment.[1069] Unless a competitor has access to the unbundled incumbent LEC inside wire subloop, competitors may simply have no alternative, especially in multiunit premises, if the premises owner simply refuses to enable the competitive LEC to construct its own wiring.[1070] In situations where the

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[1069] It would be an unintended perverse result which would run afoul of one of our principal objectives in implementing the Act—the encouragement of facilities-based competition—if our rules did not accommodate this impairment while enabling competitors that continue to rely on the incumbent LEC for a full unbundled local loop (which by definition includes the Inside Wire Subloop) to gain unimpaired access to the same end users.

[1070] If there is a portion of the incumbent LEC's loop at the premises on the incumbent LEC's side of the NID, the subloop unbundling rules we adopt today will ensure useful access to the NID. *See* WorldCom Comments at 119-20. We recognize that at those premises where the building owner has exercised its right to require the incumbent LEC to place its demarcation point at the MPOE pursuant to 47 C.F.R. § 68.105, the wiring at that premises will not be part of the incumbent LEC's local loop and our Inside Wire Subloop rules may not aid the competitor in reaching the customer if the building owner will not enable the competitor to construct its own wiring (assuming such construction would even be economically feasible). In this situation, however, enabling competitive LECs to connect their loop to the incumbent LEC's unbundled NID gives competitive LECs access to the existing inside wire used by the incumbent LEC to reach its customers even though this inside wire may not be an UNE. We reiterate our requirement that access to such wiring be provided to a competitive LEC on non-discriminatory terms where another carrier

competitor may be able to negotiate the right to install its own wiring, consistent with our finding of financial/economic barriers for self-provisioning most loops and subloops, generally, duplication of the inside wire subloop, particularly for a limited number of tenants is both cost and time prohibitive and could require competitors to incur sunk costs which may never be recoverable.[1071]

355. Commenters confirm that in those premises where the demarcation point of the incumbent LEC's network is not located at the MPOE and the incumbent LEC's network extends into the premises, a competitor's access to the incumbent LEC's inside wire is often the only means by which a competitive LEC can practically offer service to customers.[1072] There is no evidence that any third-party alternative providers exist and self-provisioning is extremely difficult, if not impossible. The record further reflects that competitive carriers continue to experience barriers with respect to their ability to gain access to multiunit premises to install their own facilities as building owners regularly impose unreasonably high entry rates on competitive LECs; fail to negotiate on a timely basis;[1073] or impose uneconomic limitations on the installation of inside wiring.[1074]

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providing service at the premises over such wire, *e.g.*, the incumbent LEC, has responsibility for the installation and maintenance of the wire. Similarly, we expect building owners to exercise the control of this wiring in a non-discriminatory way. *See Competitive Networks Order*, 15 FCC Rcd at 23009, para. 57.

[1071] *See* ALTS *et al.* Comments at 42.

[1072] WorldCom Reply at 170; NuVox *et al.* Comments at 81 (citing TDS Jackson Aff. at para. 10 n.251) ("For residential and small business customers who are served off basic loops or subloops, there is absolutely no way to justify overbuilding LEC facilities using current technology.").

[1073] *See, e.g.*, WorldCom Comments at 120 (noting that it takes 6-9 months to negotiate); AT&T Reply at 174-79.

[1074] *See, e.g.*, AT&T Reply at 176.

(ii) NID Impairment

356. We conclude that the NID should remain available as an UNE as the means to enable a competitive LEC to connect its loop to customer premises inside wiring.[1075] As noted by commenters, the NID is the gateway to the consumer and thus the key to local competition.[1076] Indeed, the record shows that the NID may often be the only means through which a competitive LEC can provide facilities-based service to customers, particularly those located in multiunit premises.[1077] As we noted above in our discussion of the inside wire subloop, unbundled access to the NID ensures that competitors are able to access customer premises inside wiring owned, controlled or used by the LEC, even if competitors are precluded by the premises owner from installing duplicative, yet necessary, wiring to reach their customer.[1078] The Commission first recognized this in the *Local Competition Order*[1079] and we find it to remain the case today. If anything, the record suggests that as more and more competitors begin deploying their own local loop facilities in lieu of relying on the incumbent LEC loop, access to the unbundled NID will be more critical than ever.[1080] We agree that unbundled access to the NID remains a crucial catalyst to

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[1075] *See, e.g.*, NuVox *et al.* Comments at 83-84; NuVox *et al.* Reply at 39; GCI Comments at 43-44; WorldCom Comments at 119-20; WorldCom Reply at 170-71; Supra Comments at 9; Sprint Comments at 31; ALTS *et al.* Comments at 60.

[1076] NuVox *et al.* Comments at 83.

[1077] *See, e.g.*, WorldCom Comments at 120; Sprint Comments at 31-32.

[1078] *See supra* para. 352.

[1079] *Local Competition Order*, 11 FCC Rcd at 15697, para. 392.

[1080] *See, e.g.*, GCI Comments at 43; WorldCom Reply at 170-71; Sprint Comments at 32; ALTS *et al.* Comments at 60.

facilities-based competition.[1081] The record demonstrates that competitive carriers face numerous situations where access to the unbundled NID is critical to the ability to access the LEC's inside wire subloop or other customer premises inside wiring beyond the demarcation point in order to reach the end-user customer.[1082] Only one commenter, Verizon, opposed continued unbundling of the NID. We disagree with Verizon that because no requests for unbundled access to the NID have been made in Verizon territory, no requesting carrier can reasonably claim that it is impaired without access to the LEC's unbundled NID.[1083] The record reflects otherwise on a nationwide basis.

[1081] *See, e.g.*, ALTS *et al.* Comments at 60 (noting that "unbundling the NID promotes facilities-based competition by allowing carriers to reduce their reliance on the incumbent by interconnecting their facilities closer to the customer.").

[1082] *See, e.g.*, WorldCom Comments at 120; WorldCom Reply at 170-71; Sprint Comments at 31-32; *see also* Cox Dec. 19, 2002 *Ex Parte* Letter.

[1083] *See* Verizon Comments at 122 n.433. While it may initially appear that AT&T, like Verizon, suggests that the NID need not be separately unbundled from the loop so as to prevent competitors from accessing it on a stand-alone basis, AT&T's comments appear to be directed both at how a competitive LEC is *charged* for access to the NID functionality and whether the NID functionality is to be provided as part of a loop or subloop when ordered by a competitive LEC rather than whether it should be available as a separate unbundled element to the extent competitive LECs require access to the NID on a stand-alone basis. *See* AT&T Comments at 162; AT&T Corp. Petition For Reconsideration and Clarification of the Third Report and Order, CC Docket No. 96-98 at 19-20 (filed Feb. 17, 2000) (AT&T Feb. 17, 2000 Petition for Reconsideration). We have distinguished above those scenarios where the NID must be provisioned as part of the loop or subloop when a competitive LEC orders a loop or subloop and those scenarios when charges for stand-alone NID access are appropriate. The NID and subloop unbundling rules we adopt herein ensure that competitive LECs obtain a full loop or subloop, including the network termination portion of that loop or subloop, if required, yet preserves the ability of facilities-based LECs to obtain access to only the NID on a stand-alone basis when

357. The record also reveals that the equipment, labor and construction cost of duplicating the NID functionality at every customer location continues to be prohibitive,[1084] and, thus, presents a barrier to entry.[1085] Moreover, the record indicates that no competitive NID providers exist.[1086] Finally, commenters offer compelling evidence that from an operational perspective, denying competitors the ability to access the incumbent LEC's unbundled NID could result in complicated inside wire rearrangements that would result in lengthy service delays and costs and result in a waste of resources for all carriers involved.[1087]

358. We decline to adopt in this Order more specific rules defining, on a nationwide basis, the manner and scope of

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required. AT&T's February 17, 2000 petition for reconsideration with respect to loop and subloop unbundling requirements is therefore moot.

[1084] *See, e.g.*, Sprint Comments at 31 ("[I]t is the total cost of installing a NID at every customer location that substantially impairs requesting carriers"); ALTS *et al.* Comments at 59 ("The cost/benefit equation of self-provisioning NIDs has not changed since the *UNE Remand Order*. Self-provisioning NIDs at numerous locations would cause competitive LECs to incur duplicative expense and delay the timeframe in which they are able to provide service."); *see also* GCI Comments at 42- 43; WorldCom Comments at 120; NuVox *et al.* Comments at 84; NuVox *et al.* Reply at 39 n.169.

[1085] We reached a similar conclusion in the *UNE Remand Order*. *See UNE Remand Order*, 15 FCC Rcd at 3801, para. 232.

[1086] NuVox *et al.* Comments at 84 ("[T]he CLEC Coalition knows of no vendor that can provide it with or install NIDS at the locations they serve. Thus, they must continue to rely on LECs for NID access in order to have entry to customer premises."); *see also* Sprint Comments at 32 ("Sprint is unaware of any alternative providers of standalone NIDs.").

[1087] *See* Sprint Comments at 32; *see also* WorldCom Comments at 120 ("It would be prohibitively expensive for a CLEC leasing unbundled loops to single unit premises to dispatch technicians to each unit to install a new NID, and it would be wasteful to impose on new entrants the costs both of disconnecting loops and NIDs that are normally combined in ILEC's networks and of installing new and unnecessary NIDs.").

access to the unbundled NID functionality.[1088] Individual incumbent LEC and competitive LEC arrangements governing the process and procedures for obtaining access to an UNE to which a competitive LEC is entitled, are more appropriately addressed in the context of individual interconnection agreements pursuant to section 252 of the Act. Should a competitive LEC believe that the incumbent LEC is imposing unreasonable or discriminatory requirements, either in the negotiation or implementation stage of an interconnection arrangement, forums to address such issues are set forth in the Act.[1089] These same forums are available to the incumbent LEC. We note, however, that the record contains evidence that at least one incumbent LEC requires competitive LECs seeking access to the NID or inside wire subloop to undertake a lengthy and burdensome process at the customer premises to "collocate" a separate terminal facility in order to gain access to the inside wire subloop, or other inside wire used by the LEC to access customers in multiunit premises.[1090] We find such a requirement to be contrary to the NID and inside wire subloop unbundling rules we adopt today and therefore prohibit such requirements.[1091] Similarly, a competitive LEC seeking to

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[1088] *See* BellSouth Comments at 75-76 (discussing hypothetical "hazards" that competitive LECs may cause to an end user's premises through accessing the incumbent LECs NID and arguing that competitive LECs need to agree to follow practices and procedures that ensure safety and continuity of service); *see also* Cox Dec. 19, 2002 *Ex Parte* Letter (discussing its experience with requirements imposed by certain incumbent LECs associated with a competitive LECs need to access the NID functionality and requesting that the Commission adopt a uniform nationwide rule which would prohibit unreasonable requirements).

[1089] *See generally* section 252 of the Act governing the process for interconnection negotiations and related disputes. 47 U.S.C. § 252.

[1090] *See* Cox Dec. 19, 2002 *Ex Parte* Letter.

[1091] As we have noted in para. 350, *supra*, we recognize that facilities-based carriers, in particular, may use an alternative method of

make contact with the incumbent LEC's NID for the purpose of disconnecting wiring on the customer's side of the NID so that the competitive LEC can reconnect such customer wiring to its own NID is *not* accessing the incumbent LEC's NID as a UNE. As such, an incumbent LEC requirement to have its technician present and to impose an associated charge on the competitive LEC for such contact on the non-network side of the NID would also be contrary to the rules we adopt today. Accordingly, we therefore prohibit these types of requirements as well.

C. Dedicated Transport

1. Summary

359. Pursuant to the approach of the *Triennial Review NPRM*, the Commission adopts in this Order a more granular unbundling analysis for transport facilities.[1092] As discussed above, this analysis comports with the guidance of the Supreme Court and the D.C. Circuit which call for the Commission "to apply *some* limiting standard" and to demonstrate "a reasonable basis for thinking that competition is suffering . . . impairment."[1093] Our findings reflect these admonitions as we carefully assess the availability of network elements from alternative sources outside the incumbent LECs' facilities.[1094] As an initial matter, we limit our definition of the dedicated transport network element to only those transmission facilities connecting incumbent LEC switches or wire centers. The Commission makes findings regarding impairment as to different capacities of transport.

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interconnection as provided for in section 51.321 of the rules, 47 C.F.R. § 51.321. Moreover, with respect to subloops to access multiunit premises including Inside Wire Subloops, a collocation requirement would be unduly burdensome and unnecessary.

[1092] *Triennial Review NPRM*, 16 FCC Rcd at 22809-11, paras. 63-64.

[1093] *Iowa Utils. Bd.*, 525 U.S. at 388 (emphasis in original); *USTA*, 299 F.3d at 422.

[1094] *See UNE Remand Order*, 15 FCC Rcd at 3861-62, paras. 366-68.

We believe that our analysis of transport will create market certainty and provide incentives for competitive LECs to deploy and utilize alternate facilities.[1095] Specifically, based on the evidence in the record, we make the following determinations:

- *OCn Transport.* We find on a national level that requesting carriers are not impaired without access to unbundled OCn transport facilities.[1096]
- *Dark Fiber Transport.* We find on a national level that requesting carriers are impaired without access to unbundled dark fiber transport facilities,[1097] subject to both a granular route-based review by the states to identify available wholesale facilities and to identify where transport facilities can be deployed.
- *DS3 Transport.* We find on a national level that requesting carriers are impaired without access to DS3 transport, subject to both a granular route-based review by the states to identify available wholesale facilities and to identify where transport facilities can be deployed.
- *DS1 Transport.* We find on a national level that requesting carriers are impaired without access to unbundled DS1 transport facilities,

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[1095] Providing a limitation on the availability of higher capacity unbundled transport may also encourage technological innovation that allows more efficient use of lower capacity bandwidth levels.

[1096] As discussed below, OCn transport refers both to a capacity and technical distinction based on fiber optic technology. *See infra* para. 372.

[1097] Dark fiber transport facilities, as discussed below, are transport facilities without any activated electronics. *See infra* para. 381.

subject to a granular route-based review by the states to identify available wholesale facilities.

360. Our impairment findings with respect to DS1, DS3 and dark fiber transport facilities recognize that competing carriers face substantial sunk costs and other barriers to self-deploy facilities and that competitive facilities are not available in a majority of locations, especially non-urban areas.[1098] The record further indicates, however, that competitive DS1, DS3, and dark fiber transport facilities are available on a wholesale basis in some areas, and that competing carriers have deployed their own transport networks in some areas. Because the record is not sufficiently detailed concerning exactly where these facilities have been deployed, and because the nature of transport facilities requires a highly granular impairment analysis, we establish specific triggers for states to apply in conducting such an analysis. We establish two ways for an incumbent LEC or other party to show where requesting carriers are not impaired without unbundled transport: (1) by identifying specific point-to-point routes where carriers have the ability to use alternatives to the incumbent LEC's network, or (2) by identifying specific point-to-point routes where self-provisioning transport facilities is economic. We delegate to state regulators the authority to make findings of fact within the scope of these triggers to identify on a more granular scale where carriers are not impaired without access to incumbent LEC unbundled transport. In addition to allowing a more

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[1098] We note that through the application of our new impairment standard to high-capacity transport, including impairment analyses based on each particular capacity level, we have considered evidence raised by joint petitioners in the High-Capacity Loop and Transport Petition. *See* High-Capacity Loop and Transport Petition. Because we base our unbundling obligations with respect to transport on our findings of impairment and non-impairment according to our new impairment standard, we dismiss the High-Capacity Loop and Transport Petition as moot.

precise finding of impairment, our analysis provides a roadmap for deregulation where regulation does not serve the goals of the Act.[1099]

2. Background

361. Dedicated interoffice transmission facilities (transport) are facilities dedicated to a particular customer or competitive carrier that it uses for transmission among incumbent LEC central offices and tandem offices.[1100] Competing carriers generally use interoffice transport as a means to aggregate end-user traffic to achieve economies of scale. They do so by using dedicated transport to carry traffic from their end users' loops, often terminating at incumbent LEC central offices, through other central offices to a point of aggregation. Ultimately, the traffic is carried to the competitor's switch or other equipment, often from an incumbent LEC central office along a circuit generally known as an entrance facility.

362. The definition of dedicated transport adopted by the Commission in the *UNE Remand Order* broadly applied to all technically feasible capacity levels between incumbent LEC wire centers, or between switches owned by incumbent LECs or requesting telecommunications carriers.[1101] Although the

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[1099] In contrast, in the *Local Competition Order* and *UNE Remand Order*, despite observing that competitive transport facilities were available in many locations, the Commission concluded that incumbent LECs must provide interoffice transmission facilities, including dedicated and shared transport, on an unbundled basis to requesting carriers, practically without limit. *Local Competition Order*, 11 FCC Rcd at 15717, para. 439; *UNE Remand Order*, 15 FCC Rcd at 3842, para. 321; *see also Shared Transport Order*, 12 FCC Rcd at 12475, para. 25.

[1100] We refer generically to "transport" in this Part as meaning dedicated transport. We address shared transport in Part VI.E. of this Order.

[1101] The Commission defined dedicated transport as "incumbent LEC transmission facilities including all technically feasible capacity-related services including, but not limited to, DS1, DS3 and OCn levels, dedicated to a particular customer or carrier, that provide

UNE Remand Order defined transport broadly, the record reveals that the availability of these facilities has been limited in a number of ways. First, although the Commission determined that requesting carriers are impaired without access to entrance facilities,[1102] availability has been very limited as a practical matter because new facilities often must be constructed to deploy this circuit.[1103] Second, CMRS providers have demanded, and incumbent LECs have denied, access to unbundled transmission circuits.[1104] Third, some incumbent LECs have interpreted commingling and use restrictions to further limit the ability of carriers to obtain unbundled transport facilities.[1105] Finally, incumbent LECs have denied requesting carriers access to transport using SONET technology.[1106]

363. Reviewing courts have considered the Commission's broad network element definitions and unbundling

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telecommunications between wire centers owned by the incumbent LECs or requesting telecommunications carriers, or between switches owned by incumbent LECs or requesting telecommunications carriers." 47 C.F.R. § 51.319(d)(1)(i).

[1102] *See UNE Remand Order*, 15 FCC Rcd at 3851-52, paras. 347-48.

[1103] For a detailed discussion of limitations on new facilities construction, see our discussion of this aspect of network modifications at Part VII.D below. *See also Supplemental Order*, 15 FCC Rcd at 1760, para. 4 & n.5 (discussing a limitation on converting entrance facilities from incumbent LEC special access to unbundled transport).

[1104] We address CMRS carrier access to unbundled transport more fully below.

[1105] For further discussion of the Commission's previous use and commingling restrictions, *see* Part VII.A. *infra.*

[1106] BellSouth Comments at 56; *see also UNE Remand Order*, 15 FCC Rcd at 3843, para. 324. SONET is an optical interface standard for translating electronic communications signals into photonic signals for transmission across fiber optic facilities. Ideally, SONET transmission systems are laid out in a ring formation to provide redundancy. *See* NEWTON'S TELECOM DICTIONARY 684-86 (18th ed. 2002).

requirements. The Supreme Court stated that the Commission's impairment analysis "cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent LEC's network."[1107] More recently, the D.C. Circuit questioned how the Commission could find that an element like transport "is significantly deployed on a competitive basis," but remains available as an unbundled element from the incumbent LEC.[1108] In both *Iowa Utilities Board* and *USTA*, the courts were reviewing broad unbundling requirements for transport that made little to no distinction in capacity, geography, or customer class.

364. In the *Triennial Review NPRM*, the Commission sought comment on how to analyze impairment for transport, especially in light of the manner in which the Commission's rules have been interpreted by courts and carriers in the industry. Importantly, the Commission sought comment on whether it should refine its unbundling analysis for transport by applying a more granular analysis based on service, geographic, or capacity distinctions.[1109] The Commission also invited comments and "proposals for guidelines or bright-line rules that would provide sufficient guidance [to] all parties involved to minimize disputes arising from implementation of unbundling requirements adopted in this proceeding."[1110]

3. Definition of Dedicated Transport

365. We limit our definition of dedicated transport under section 251(c)(3) to those transmission facilities connecting

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[1107] *Iowa Utils. Bd.*, 525 U.S. at 389. The Court intimated that the Commission should consider when elements can be "self-provision[ed]" or "purchas[ed] from another provider." *Id.*

[1108] *USTA*, 290 F.3d at 422.

[1109] *Triennial Review NPRM*, 16 FCC Rcd at 22810, para. 64.

[1110] *Id.* at 22811, para. 65.

incumbent LEC switches and wire centers within a LATA.[1111] The Commission previously defined dedicated transport as:

> incumbent LEC transmission facilities dedicated to a particular customer or carrier that provide telecommunications *between wire centers owned by incumbent LECs or requesting telecommunications carriers, or between switches owned by incumbent LECs or requesting telecommunications carriers.*[1112]

We conclude that our previous definition was overly broad. As we explain in this Part, competitive LECs often use transmission links including unbundled transport connecting incumbent LEC switches or wire centers in order to carry traffic to and from its end users. These links constitute the incumbent LEC's own transport network. However, in order to access UNEs, including transmission between incumbent LEC switches or wire centers, while providing their own switching and other equipment, competitive LECs require a transmission link from the UNEs on the incumbent LEC network to their own equipment located elsewhere. Competitive LECs use these transmission connections between incumbent LEC networks and their own networks both for interconnection and to backhaul traffic. Unlike the facilities that incumbent LECs explicitly must make available

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[1111] Section 271 of the Act prohibits BOCs from providing in-region interLATA services unless the BOC meets very specific requirements, but transport and other services are permitted within a LATA without meeting such requirements. *See* 47 U.S.C. § 271. Therefore, we find that LATA boundaries serve as a reasonable limitation on the scope of BOC obligations to unbundle transport.

[1112] *Local Competition Order*, 11 FCC Rcd at 15718, para. 440, *reaffirmed in UNE Remand Order*, 15 FCC Rcd at 3842, paras. 322-23 (emphasis added); *see* 47 C.F.R. § 51.319(d)(1)(i); *see* NuVox *et al.* Reply at 34-36 (noting that the Commission's rules explicitly unbundle transmission facilities connecting incumbent LEC switches or wire centers with competitive LEC switches).

for section 251(c)(2) interconnection,[1113] we find that the Act does not require incumbent LECs to unbundle transmission facilities connecting incumbent LEC networks to competitive LEC networks for the purpose of backhauling traffic.

366. We find that a more reasonable and narrowly-tailored definition of the dedicated transport network element includes only those transmission facilities *within* an incumbent LEC's transport network, that is, the transmission facilities between incumbent LEC switches.[1114] Because the Act does not provide guidance on which transmission facilities should be included in the definition of the transport network element, we believe we have discretion to adopt a definition that is in keeping with the section 251's goal of opening the incumbent LEC's local network to competition. We find that transmission facilities connecting incumbent LEC switches and wire centers are an inherent part of the incumbent LECs' local network Congress intended to make available to competitors under section 251(c)(3). On the other hand, we find that transmission links that simply connect a competing carrier's network to the incumbent LEC's network are not inherently a part of the incumbent LEC's local network. Rather, they are transmission facilities that exist *outside* the incumbent LEC's local network. Accordingly, such transmission facilities are not appropriately included in the definition of dedicated transport. We note that a previous

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[1113] Specifically, section 251(c)(2) requires access to "the facilities and equipment" used by competing carriers for "interconnection with the local exchange carrier's network . . . for the transmission and routing of telephone exchange service and exchange access . . . ." The *Local Competition Order* discussed the relationship between sections 251(c)(2) and 251(c)(3) only to the extent that the obligation under section 251(c)(3) "allows unbundled elements to be used for a broader range of services than subsection (c)(2) allows for interconnection." *Local Competition Order*, 11 FCC Rcd at 15636-37, para. 270.

[1114] For further discussion of the Commission's definition of "network elements," see *supra* Part V.A.

Commission reached a different result finding that, because unbundling this type of transmission facility is "technically feasible" and "will reduce entry barriers into the local exchange market," it was appropriate to include such facilities within the definition of dedicated transport.[1115] We find that this approach was misguided. The standard for unbundling is not "technical feasibility" and, moreover, just because a facility is capable of being unbundled does not mean that it is appropriately considered to be a network element for purposes of section 251(c)(3). We find that the more reasonable approach, and the one that is most consistent with the goals of section 251, is to not consider those facilities outside of the incumbent LEC's local network as part of the dedicated transport network element that is subject to unbundling.[1116] In reaching this determination we note that, to the extent that requesting carriers need facilities in order to "interconnect[] with the [incumbent LEC's] network," section 251(c)(2) of the Act expressly provides for this and we do not alter the Commission's interpretation of this obligation.[1117] Therefore, we find that the dedicated transport network

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[1115] *Local Competition Order*, 11 FCC Rcd at 15718-19, paras. 440-43.

[1116] Our determination here effectively eliminates "entrance facilities" as UNEs and, therefore, moots the Commission's *Fourth Further NPRM* insofar as it proposes limitations on obtaining entrance facilities as UNEs. *UNE Remand Order*, 15 FCC Rcd at 3914-15, paras. 492-96 (setting forth the *Fourth Further NPRM*). We note that the terms of the *Fourth Further NPRM* were expanded to include unbundled loop/transport combinations in addition to entrance facilities. *See generally Supplemental Order*, 15 FCC Rcd 1760; *Supplemental Clarification Order*, 15 FCC Rcd 9587. We address issues related to unbundled loop/transport combinations *infra* Part VII.A.

[1117] Section 251(c)(2) requires access to "the facilities and equipment" used by competing carriers for "interconnection with the local exchange carrier's *network* . . . for the transmission and routing of telephone exchange service and exchange access." 47 U.S.C. § 251(c)(2) (emphasis added).

element includes only those "features, functions, and capabilities" of equipment and facilities that coincide with the incumbent LEC's transport network—the transmission links connecting incumbent LEC switches or wire centers.[1118]

367. Our conclusion in this respect is buttressed by the fact that the economics of dedicated facilities used for backhaul between networks are sufficiently different from transport within an incumbent LEC's network that our analysis must adequately reflect this distinction. Competing carriers have control over where to locate their network facilities to minimize self-deployment costs, or the costs of using third-party alternatives for transport from the incumbent LEC's network.[1119] These backhaul facilities from incumbent LEC networks to competitors' networks are distinguished from other transport facilities because competing carriers have some control over the location of their network facilities that is lacking with regard to transport as we define it here. Competing carriers control, in part, how they design and locate their networks, as opposed to obtaining a connection between two incumbent LEC wire centers.[1120] For instance, a competing carrier can choose to locate its switch very close to an incumbent LEC wire center to minimize costs associated with deploying fiber over longer distances. Similarly, a competing carrier can choose to locate its network equipment, such as its switch, near other competing carriers to share costs, or near existing competitive fiber providers that have

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[1118] *Id.* § 153(29).

[1119] Although we are not in this subsection conducting an impairment analysis, we find that this economic difference significantly distinguishes our analysis of intra-incumbent LEC transmission facilities—which we define to be transport—from inter-network transmission facilities used for backhaul. *See supra* Part V.B. (discussing the impairment standard).

[1120] The Commission recognized this principle in the *Local Competition Order* in its discussion of the choices competing carriers make in choosing an efficient point of interconnection. *See Local Competition Order*, 11 FCC Rcd at 15608, para. 209.

already deployed competitive transport facilities.[1121] Competing carriers have no such choice in seeking to obtain transport within the network of incumbent LECs. We also note that transmission facilities used for backhaul from an incumbent LEC office to a competitive LEC network often represents the point of greatest aggregation of traffic in a competing carrier's network, and such carriers are more likely to self-deploy these facilities because of the cost savings such aggregation permits.[1122] Moreover, we find that our more limited definition of transport is consistent with the Act because it encourages competing carriers to incorporate those costs within their control into their network deployment

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[1121] Additionally, the BOCs describe "collocation hotels" as points of telecommunications traffic aggregation used by multiple carriers and ISPs to interconnect with each other. These collocation hotels are often located very close to an incumbent LEC central office for carriers to connect to the incumbent LEC's network. BOC UNE Fact Report 2002 at III-4 through III-5; *see also* Verizon Jan. 10, 2003 UNE-P *Ex Parte* Letter at 6 (describing the choice competitors have in the location of their network facilities when entering a market); WorldCom Reply at 130 ("Collocation hotels are useful places for carriers and very large customers to meet."). We find that collocation hotels, however, do not provide a substitute for the need to access within an incumbent LEC's network. *See* WorldCom Reply at 130.

[1122] Competing carriers agree that the most competitive type of transport is the link between an incumbent LEC wire center and a competitor's network. *See* Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 7 (filed Nov. 18, 2002) (WorldCom Nov. 18, 2002 EELs *Ex Parte* Letter) (asserting that because "entrance facility" deployment is so pervasive, incumbent LEC special access pricing closely mirrors UNE rates); Letter from Patrick J. Donovan, Counsel for Cbeyond, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Declaration of Richard Batelaan at para. 10 (filed Nov. 22, 2002) (Cbeyond Nov. 22, 2002 Transport *Ex Parte* Letter) (stating that "alternative provider [transport] facilities are typically used between Cbeyond's non-ILEC collocation point of presence ("POP") and the ILEC tandem office or offices where Cbeyond aggregates traffic.").

strategies rather than to rely exclusively on the incumbent LEC's network.[1123]

368. We note that this change in definition applies to all competitors alike, including intermodal competitors. We find that no requesting carrier shall have access to unbundled inter-network transmission facilities under section 251(c)(3). Thus, assuming *arguendo*, that a CMRS carrier's base station is a type of requesting carrier switch, CMRS carriers are ineligible for dedicated transport from their base station to the incumbent LEC network.[1124] However, all telecommunications carriers, including CMRS carriers, will have the ability to access transport facilities *within* the incumbent LEC's network, pursuant to section 251(c)(3), and to interconnect for the transmission and routing of telephone exchange service and exchange access, pursuant to section 251(c)(2).[1125]

[1123] Finally, we do not want to delay the further development of intermodal solutions, such as point-to-point microwave, that competing carriers may use to hub traffic back to a common location. Some CMRS carriers state that they are able to use point-to-point microwave as an alternative to incumbent LEC transmission facilities on some routes. Nextel Comments at 6-7; Letter from Michael H. Pryor, Counsel for AT&T Wireless, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 11 (filed Jan. 7, 2003) (ATTWS Jan. 7, 2003 *Ex Parte* Letter) (approximately 4% of ATTWS transport links are microwave). We note that these carriers cite limitations on microwave including the need for zoning approval for towers, licensing, limited space on cell towers, and reliability concerns. *Id.* As a result, this type of self-provisioning is "not common." Nextel Comments at 6-7; *see* ATTWS Jan. 7, 2003 *Ex Parte* Letter, Attach. at 11.

[1124] Our decision moots the ATTWS/VoiceStream Petition to the extent that it requests that CMRS carriers have access to unbundled transport facilities from an incumbent LEC wire center to a CMRS base station or mobile switching center (MSC). ATTWS/VoiceStream Petition at 19-26.

[1125] Accordingly, to the extent that the Petition for Declaratory Rulemaking filed by AT&T Wireless and VoiceStream requests that

369. We find that this technology-neutral approach best comports with the statute, suits the development of intermodal competition, and recognizes the role of the requesting carrier in controlling the costs associated with where to locate its network. Accordingly, we limit the dedicated transport network element to those incumbent LEC transmission facilities dedicated to a particular customer or carrier that provide telecommunications between switches or wire centers owned by incumbent LECs.[1126] We conduct our impairment analysis based on this definition of the transport network element.

4. Impairment Analysis

a. General Economic and Operational Characteristics of Transport

370. Competing carriers generally use dedicated transport as a means to aggregate end-user traffic to achieve economies of scale. Such transport carries their traffic within the incumbent LEC's network through the incumbent LEC's central offices to a point of aggregation. As noted above, ultimately, the traffic is carried to the competitor's switch, or other equipment, from an incumbent LEC central office along

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unbundled transport be available to CMRS carriers, that portion of the Petition is moot. ATTWS/VoiceStream Petition at 5-19; *see also Triennial Review NPRM*, 16 FCC Rcd at 22809-10, para. 63.

[1126] We recognize that incumbent LECs may "reverse collocate" in some instances by collocating equipment at a competing carrier's premises, or may place equipment in a common location, for purposes of interconnection. *See, e.g.*, Letter from Steven A. Augustino, Counsel for SNiP LiNK, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-3 (filed Feb. 5, 2003) (SNiP LiNK Feb. 5, 2003 Reverse Collocation *Ex Parte* Letter). Moreover, to the extent that an incumbent LEC has local switching equipment, as defined by the Commission's rules, "reverse collocated" in a non-incumbent LEC premises, the transmission path from this point back to the incumbent LEC wire center shall be unbundled as transport between incumbent LEC switches or wire centers to the extent specified in this Part.

an inter-network facility often known as an entrance facility. When carriers self-deploy transport facilities, they typically deploy fiber rings that may connect several incumbent LEC central offices in a market.[1127] On these rings, carriers aggregate end-user traffic for backhaul to their switch, or other equipment, in a similar manner to the way in which carriers do in using incumbent LEC facilities. However, these fiber rings are often deployed to maximize the ability of competitors eventually to deploy loop facilities to connect directly buildings and customers to the transport fiber ring, without accessing unbundled loops at an incumbent LEC central office.[1128]

371. Deploying transport facilities is an expensive and time-consuming process for competitors, requiring substantial fixed and sunk costs.[1129] Most competing carriers' comments have focused on the costs of self-deploying transport

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[1127] *See* KMC Duke Aff. at para. 3 (stating that KMC typically invests in a local SONET network and collocates at three incumbent LEC offices, including the tandem); Letter from Joan Marsh, Director - Federal Government Affairs, AT&T to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 5-8 (filed Oct. 4, 2002) (AT&T Oct. 4, 2002 *Ex Parte* Letter) (describing how AT&T deploys "metro rings").

[1128] For example, KMC designs its networks to reach 80% of the commercial buildings in each local market that it serves by either direct "on-net" service, or by using unbundled loops aggregated at incumbent LEC offices. KMC Duke Aff. at para. 3. Of the 80% of total buildings KMC is able to reach, over 36% can be reached "on-net," indicating that KMC's fiber ring deployment is significantly designed to bypass the incumbent LEC loop network where possible, rather than simply mirroring the incumbent LEC's transport network connecting incumbent LEC wire centers. *Id.*; AT&T Nov. 25, 2002 *Ex Parte* Letter, Attach. B at 1-2 (describing local "building rings" that are approximately 30 miles each and connect 10-15 buildings).

[1129] *See* WorldCom Comments at 77 (extending WorldCom's transport network to an additional incumbent central office generally costs at least $1 million); AT&T Nov. 25, 2002 *Ex Parte* Letter, Attach. A.

facilities. Among the costs associated with self-deployment of transport facilities are collocation costs,[1130] the cost of fiber, the cost of physically deploying the fiber,[1131] and the cost of the optronics necessary to light the fiber.[1132] Moreover, parties have explained that carriers deploying fiber facilities must obtain rights-of-way, which can delay deployment. While we find that substantial sunk costs are required to deploy transport, the economic characteristics of transport vary from those of loops.[1133] Incumbent LECs assert that they face similar fixed costs for deploying fiber as competitive LECs[1134] and that new technologies may reduce the costs of

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[1130] *See* AT&T Comments at 145. We note that the Commission's collocation rules define the statutory duties of incumbent LECs to allow competitive LECs to collocate in incumbent LEC premises. *See Collocation Remand Order*, 16 FCC Rcd at 15435.

[1131] *See, e.g.*, Conversent Comments, Exh. 1, Declaration of David A. Graham (Conversent Graham Decl.) at para. 30 (estimating the costs of deploying fiber to replicate its unbundled dark fiber network).

[1132] *See* ALTS *et al.* Comments at 73; AT&T Nov. 25, 2002 *Ex Parte* Letter, Attach. A at 6 (stating that "relatively little equipment" is required to be placed in a collocation arrangement for interoffice transport including "optical path panels (to terminate and cross-connect the fiber facility), optical multiplexers, and power distribution (*e.g.*, power filtering and fuses) equipment.").

[1133] Like loops, transport costs (aside from attached electronics) are substantially sunk insofar as the facility cannot be moved to another location upon exit from the market. However, because transport facilities typically connect points of network traffic aggregation, the sunk costs of transport are different from the sunk cost of deploying loops (especially lower capacity loops) because the carrier is less dependent upon maintaining any particular customer relationship, but rather must maintain an aggregate level of traffic sufficient to justify the costs. Moreover, the facility may be useful to other carriers aggregating traffic at the same location.

[1134] Verizon Comments at 110 n.380.

deploying fiber.[1135] The record indicates that deploying fiber is significantly less expensive in rural areas than it is in urban areas[1136] and that how the fiber is deployed affects the cost of deployment.[1137] Competing carriers also explain that deploying transport facilities can take a long period of time.[1138] The record indicates that obtaining rights-of-way

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[1135] BOC UNE Fact Report 2002 at III-8 (describing CityNet's process for deploying fiber through utility pipes rather than trenching to bury fiber cables).

[1136] *See, e.g.*, Letter from Lawrence R. Freedman, Counsel for Norlight, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 3 (filed Dec. 30, 2002) (Norlight Dec. 30, 2002 *Ex Parte* Letter) (noting that deployment in rural areas is faster and less costly because cabling can be run on poles and does not need to be buried); WorldCom Fleming Decl. at para. 18 (stating that deploying fiber in urban and suburban areas is costlier than in rural areas because trenching requires digging up and then repairing streets and sidewalks).

[1137] El Paso *et al.* Comments at 21 (indicating that placing fiber underground can cost $100,000 to $300,000 per mile while placing fiber on poles can cost $50,000 per mile and placing fiber in pipelines costs $10,000 to $60,000 per mile); Conversent Graham Decl. at para. 30 (estimating the costs in Massachusetts of underground fiber deployment where conduit is not available at $485,812.80 per mile and aerial fiber deployment at $44,915.40 per mile).

[1138] For instance, obtaining permits may take 2 weeks to 90 days. TDS Comments, CC Docket No. 96-98, at 6 (filed June 11, 2001) (TDS June 11, 2001 High-Capacity Comments); Verizon Comments at 111 n.385. Obtaining necessary rights-of-way likely takes 4-6 months. AT&T Comments at 144. Building the actual fiber facilities takes approximately 6-9 months. Sprint Comments at 46. Fiber can be deployed in a buried manner in rural areas at a rate of several miles per day, in suburban areas, at a rate of up to a half a mile per day, while in urban areas, daily construction averages only a few hundred feet. In total, WorldCom estimates that constructing fiber transport facilities takes nine months to obtain the rights-of-way, collocation application, and equipment, while it takes five months to build fiber, construct the collocation, install, and test equipment. Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-

delays entry and imposes sunk costs on competitive LEC efforts to deploy transport.[1139]

372. Carriers have developed and continue to operate copper technologies as well as fiber optic transmission technologies, such as SONET, to transport telecommunications signals.[1140] When carriers deploy new transport facilities, they deploy fiber optic facilities.[1141] The optical circuits operate and interface at a range of capacities, up to OC192.[1142] This variation in capacity is almost exclusively based on the attached optronic equipment used to activate or light the fiber optic cable.[1143] Each increasing capacity level technology, while nominally a multiple of a lower capacity system, requires a slightly different interface. Effectively, an OC3 capacity circuit carries the same capacity as three DS3 circuits, but an OC3 circuit terminates on a different technological interface. Incumbent LECs generally operate

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147, Attach. at 12 (filed Nov. 18, 2002) (WorldCom Nov. 18, 2002 Transition to UNE-L *Ex Parte* Letter).

[1139] *See, e.g.*, AT&T Comments at 142-44. *See supra* Part V.B.1.d.(i). (discussing the first-mover advantages possessed by incumbent LECs); *but see* Verizon Comments at 110 & n.380 (asserting that incumbent LECs can face similar fixed costs for deploying fiber as competitive LECs); BOC UNE Fact Report 2002 at III-8 (describing stating that new technologies are emerging that may reduce the costs and delays associated with deploying fiber).

[1140] *See infra* note 1106 (describing SONET).

[1141] For instance, AT&T discusses the low capacity limitations of copper facilities and states that virtually all incumbent LEC transport facilities are fiber. AT&T Comments at 132-34 (citing AT&T Comments, CC Docket No. 98-147, Declaration of Joseph P. Riolo at paras. 18-19 (filed Oct. 11, 2001)) (describing the technological progression from copper to optical transport facilities).

[1142] *See supra* Part VI.A.4.b.(ii) (discussing capacity distinctions with respect to enterprise loops).

[1143] AT&T Comments at 130.

their interoffice transport networks at OCn capacity levels.[1144] When transport is leased as an unbundled element to competing carriers, for example, a DS3 capacity circuit, the leased dedicated circuit is channelized within the larger OCn circuit operated by the incumbent LEC.[1145] Therefore, competing carriers are not necessarily leasing physically separate facilities, but rather, dedicated bandwidth capacities along a given route.[1146] However, through electronic equipment such as multiplexers and de-multiplexers, the circuit is provided to the requesting carrier at the requested capacity on the relevant interface, such as a DS3 interface.

373. As we have discussed, transport facilities generally are used to carry traffic aggregated from multiple customers, or even multiple carriers, within an incumbent LEC's network and, thus, the economics of transport facilities can be well-suited to a wholesale business. There are costs to carriers associated with using transport provided on a wholesale basis by third party competitive transport providers. Because a competitive transport provider may not always offer facilities that mirror the market a competing carrier serves, a competing carrier may have to make arrangements with multiple providers, thus raising its costs. Also, if a point-to-point route along which a carrier seeks transport can only be served by a combination of different competitive transport providers, commenting parties assert that service quality, especially testing for maintenance and repair, becomes much

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[1144] AT&T asserts that most carriers, including incumbent LECs, typically operate their transport networks at the OC48 capacity. AT&T Comments at 134.

[1145] *See* WorldCom Comments at 79; Covad Joshi *et al.* Decl. at paras. 46-48.

[1146] To the extent CompTel petitioned the Commission for access to packetized transport, we find CompTel's petition to be mooted by our decision today. CompTel Feb. 17, 2000 Petition for Reconsideration at 5-10.

more difficult to maintain.[1147] Finally, for a collocated competing carrier to access the transport facilities terminated in the collocation arrangement of another carrier, a cross-connect must be provisioned between collocation arrangements.[1148]

374. Collocation costs need not be a factor for every competing carrier. Firms that deploy competitive transport facilities have the ability to obtain UNEs, such as loops, for the purpose of providing a wholesale product on a common carrier basis.[1149] Therefore, competing carriers may be able to avoid the costs of collocating in central offices in which their competitive transport provider is able to access end-user loops. We also note, to the extent incumbent LECs want to remove their unbundling obligation for DS1, DS3, and dark fiber transport, they have an incentive to allow alternate transport providers to collocate in their central offices for the purposes of providing alternative transport.[1150]

375. Unlike our analysis of certain other elements, we do not make distinctions in analyzing transport based on different customer classes. While the characteristics of serving different market classes (*i.e.*, mass market and enterprise markets) may provide a rough understanding of the how carriers use transport, the characteristics do not necessarily inform when a carrier is impaired without access

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[1147] Letter from Jonathan Askin, General Counsel, ALTS, and Jonathan Lee, Vice President—Regulatory Affairs, CompTel, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 & Attach. A (filed Oct. 28, 2002) (ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter) (describing the problems associated with piecing together transport from different vendors along a single route). For further discussion of this issue with respect to our route-specific triggers, *see infra* paras. 401-402.

[1148] *See Collocation Remand Order*, 16 FCC Rcd at 15465, para. 58.

[1149] *See supra* Part V.B.2.c.

[1150] *See* our discussion *infra* Part VI.C.4.d for a more detailed discussion of this incentive.

to unbundled transport.[1151] Because mass market customers provide low revenue per customer relative to enterprise customers, competitors serving the mass market customer class achieve economies of scale by aggregating traffic from multiple incumbent LEC loops, often from several incumbent LEC central offices, to their switches.[1152] Carriers serving enterprise customers, on the other hand, can typically serve a more geographically concentrated area. They are more certain of recovering costs associated with self-providing transport facilities, and are able to achieve economies of scale by aggregating traffic from loops serving many fewer end users. These factors, principally the ability to aggregate greater quantities of traffic, make the self-provisioning of facilities more economically feasible for competing carriers serving enterprise customers than carriers serving the mass market customer class. Because customer class distinctions do not help refine our unbundling analysis of transport facilities, however, we do not develop an unbundling framework for transport based on such distinctions.

376. Instead, we organize our analysis of transport based on capacity level because it is a more reliable indicator of the economic abilities of a requesting carrier to utilize third-party alternatives, or to self-deploy. At the same time, we recognize that operational and economic concerns, though of lesser significance, will vary depending on the geographic

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[1151] For instance, a carrier serving the mass market customer class may achieve very high levels of loop concentration in an area enabling it to justify transport facilities deployment while a carrier serving a single enterprise customer in an area with a DS1 loop faces different economic costs per customer to backhaul its loop traffic to its switch. Moreover, because transport facilities are used to carry aggregated traffic, competing carriers may utilize the same transport facility to carry loop traffic serving both the mass market and enterprise customer classes.

[1152] To date, competing carriers serving the mass market have relied most extensively on shared transport, used in combination with unbundled switching.

market served. We find that the extent of competitive deployment of transport facilities can vary tremendously by geographic area. More specifically, the barriers to entry that requesting carriers face are most precisely identified on each geographic route connecting two points.[1153] Where our record permits, however, we distill general characteristics of transport routes on a national level sufficient to make nationwide determinations of impairment and non-impairment. Where the record indicates impairment and that only with more granular evidence could a finding of non-impairment be made, we establish triggers to identify non-impairment based on route-specific evidence.

377. For these reasons, a reliable measure of the ability of competing carriers to incur additional costs related to obtaining transport from an alternative provider, or self-providing, is based on the capacity competing carriers require along a transport route.[1154] Because a carrier using higher capacity levels of transport has a greater incentive and broader revenue base to support the self-provisioning of transport facilities, we adopt an approach to analyzing transport that considers different capacity levels.[1155] We

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[1153] *See infra* paras. 401-402 (further discussing our route-specific analysis).

[1154] The *Triennial Review NPRM* asks whether the Commission should pursue distinctions based on facilities in order to refine its unbundling analysis. *Triennial Review NPRM*, 16 FCC Rcd at 22800-01, 22804-05, 22809, paras. 41, 51, 62. A single voice-grade circuit can be digitized to its equivalent digital capacity of DS0. A DS1 capacity circuit carries the traffic equivalent to 24 voice-grade or DS0 channels. A DS3 capacity circuit contains the equivalent of 28 DS1 channels or 672 DS0 channels. An OC3 circuit equals the capacity of three DS3 circuits, or 84 DS1 circuits, or 2016 DS0s. Effectively, each OCn capacity interval indicates the capacity of the equivalent number of DS3 circuits—for example, an OC48 circuit has the capacity equivalent to 48 DS3 circuits.

[1155] As WorldCom states, "for any given amount of traffic, the cost per unit of traffic will be lower where larger amounts of traffic can be aggregated and carried a short distance." WorldCom Reply at 122;

expressly consider the ability of competing carriers to self-provision transport facilities, as well as the ability to manage the fixed costs associated with using competitive alternatives, based on different transport capacity levels.[1156]

b. Record Evidence

378. The record indicates that competing carriers have deployed significant amounts of fiber transport facilities to serve local markets. The BOCs claim that competitors have deployed over 184,000 route miles of fiber.[1157] An ALTS report claims that competitors have deployed over 339,500 route-miles.[1158] The record also indicates that much of this deployment has occurred in more densely populated areas.[1159]

WorldCom Bryant Reply Decl. at para. 16. Thus, competitive carriers with lower amounts of traffic aggregation, such as new market entrants, face economies of scale that can act as a barrier to entry.

[1156] In the *UNE Remand Order*, the Commission found that access to all technically feasible transport capacities, such as DS1, DS3, and OCn capacities, and would promote competition in the local exchange market. *UNE Remand Order*, 15 FCC Rcd at 3842-43, paras. 321-23; *see also Local Competition Order*, 11 FCC Rcd at 15717-18, para. 439.

[1157] *See* BOC UNE Fact Report 2002 at III-6 & nn.26-27 (asserting the number to be highly conservative as it does not include fiber miles deployed by "competitive Independent Operating Companies, utility CLECs, data providers, or Gig-E providers" and maintaining that the figure has been adjusted downward to address competitive LEC comments made during a prior proceeding); UNE Fact Rebuttal Report at 41-42 (addressing comments claiming that some of the reported route miles were long-haul fiber miles).

[1158] *See* SBC Reply at 143 (citing ALTS, THE STATE OF LOCAL COMPETITION 2002, Annual Report (Apr 2002) at 17).

[1159] The Commission has previously noted that competing carriers "have deployed interoffice transport along selected point-to-point routes, primarily in dense market areas." *UNE Remand Order*, 15 FCC Rcd at 3846-47, para. 333. Indicia of widespread fiber deployment is most prominent in the largest metropolitan areas and connections to the largest incumbent LEC wire centers. BOC UNE Fact Report 2002 at III-2 to III-3 & Tables 1-3.

According to the BOC Fact Report, competitive LECs have built fiber to approximately 13 percent of BOC wire centers.[1160] However, in the 25 largest metropolitan areas served by each BOC, competitive LECs have built fiber to 35 percent of wire centers, which provide access to 61 percent of the incumbent LECs' lines.[1161] Moreover, at least one competitor has deployed fiber to BOC wire centers with more than 5,000 business lines 48 percent of the time, providing access to 84 percent of all business lines.[1162] Even competing carriers recognize that they have available to them along many routes alternatives to the incumbent LEC's transport. In fact, a variety of carriers state that they have at least one alternative transport provider available to them on a range from 20 percent to over 50 percent of their routes.[1163]

[1160] BOC UNE Fact Report 2002 at III-2, Table 1; *see* BellSouth Jan. 17, 2003 *Ex Parte* Letter, Attach. at 5, 7 (identifying 1018 fiber-based collocation arrangements in the BellSouth region). The BOCs also present evidence, supported by the record, that competitive LEC local fiber facilities often bypass the incumbent LEC network at least partially. *Id.* at III-4. For example, AT&T describes how it deploys fiber "building rings" in order to directly connect enterprise customers to its network, bypassing the incumbent LEC's loop facilities. AT&T Nov. 25, 2002 Loop and Transport Costs *Ex Parte* Letter, Attach. B.

[1161] BOC UNE Fact Report 2002 at III-3, Table 2.

[1162] *Id.* at Table 3.

[1163] *See* Broadview Aug. 2, 2002 *Ex Parte* Letter, Attach. at 14 (Broadview able to order alternative interoffice transport 20% of the time); Covad Comments at 67-68; Covad Comments, CC Docket No. 96-98 at 8 (filed June 11, 2001) (Covad June 11, 2001 High-Capacity Comments) (competitors have terminated non-incumbent fiber in their collocation arrangements in over 51% of the incumbent central offices in which Covad also collocates); Mpower Reply at 13-16 (competitors have terminated non-incumbent fiber in their collocation arrangements in over 51% of the incumbent central offices in which Mpower also collocates); Allegiance Comments at 28 (Allegiance self-provides or leases alternative transport facilities for 30% of its routes). These carriers do not propose that where only one alternative exists, they do not face impairment for

379. The record also indicates that fiber transport facilities have been deployed by firms other than incumbent LECs with the intention of solely or partially providing wholesale transport capacity as well as dark fiber transport to other carriers.[1164] These carriers continue to deploy local fiber facilities today.[1165] The record also indicates that multiple carriers often coordinate a single transport construction project to share the one-time costs of deployment.[1166] Moreover, we note that competitive carriers seek to use existing alternatives to incumbent LEC transport facilities, including dark fiber purchases of competitive transport facilities.[1167] Therefore, it is likely that the costs of transport deployment need not be borne by a single carrier, but rather can be shared by multiple carriers.

c. Capacity-Based Impairment Analysis

380. As described above, we conduct our impairment analysis of transport on a capacity basis as we find this to be the most informative manner to review the economic barriers to entry that affect how a competing carrier is impaired without access to unbundled transport. Thus, we analyze

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unbundled transport. These numbers have not been provided in a consistent format.

[1164] BOC UNE Fact Report 2002 at III-6 through III-11 (describing "carrier-agnostic" wholesale suppliers and CAPs); Coalition of Competitive Fiber Providers Reply, at 1-2 ("Coalition members provide competitive fiber-based transport services and dark fiber to competitive local exchange carriers . . . collocated in ILEC central offices.").

[1165] *See* UNE Fact Rebuttal Report at 41-43.

[1166] AT&T Fea/Giovannucci Reply Decl. at para. 28 ("AT&T often engages in joint builds with other CLECs in order to share the high fixed costs of construction."). While AT&T reports that financial problems with building partners have proved troublesome, AT&T states that partners are often willing to make "significant payments toward construction costs" which can mitigate the up front fixed costs incurred by the lead partner actually constructing the facility. *Id.*

[1167] *See* Allegiance Comments at 28; Conversent Comments at 8-9.

transport according to different capacities and make findings of impairment or non-impairment based on the record.

(i) Dark Fiber Transport

381. We find on a national basis that competing carriers are impaired without access to unbundled dark fiber transport. Dark fiber is unactivated fiber optic cable, deployed by a carrier, that has not been activated through connections to optronics that light it, and thereby render it capable of carrying communications.[1168] Once supplied with the proper optronics and activated, dark fiber transport is used by carriers for the same purposes as lit dedicated transport. We make our determination of impairment based on the high sunk costs associated with deploying fiber facilities and the lack of evidence showing on a route-specific basis alternative fiber facilities. The same economic factors and barriers, especially the sunk cost of deploying fiber, that affect the ability of carriers to self-deploy lit transport apply equally to dark fiber transport. We address dark fiber separately from OCn transport because commenting parties identify some operational characteristics that distinguish dark fiber transport from lit transport.[1169] Dark fiber transport is activated by competing carriers using self-provided optronic equipment. We find that where carriers are impaired in their ability to self-provision the transmission conduit itself, but are not impaired by the costs of collocation and electronics necessary

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[1168] *UNE Remand Order*, 15 FCC Rcd at 3776, 3843, paras. 174, 325. The dark fiber transport element has been defined by the Commission as "incumbent LEC optical transmission facilities without attached multiplexing, aggregation, or other electronics." 47 C.F.R. § 51.319(d)(1)(ii). In the *UNE Remand Order*, the Commission found that dark fiber fits within the definition of "network element" as a "facility or equipment used in the provision of a telecommunications service, including "features, functions, and capabilities that are provided by means of such facility or equipment." *UNE Remand Order*, 15 FCC Rcd at 3844, para. 326.

[1169] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1, 12-14.

to activate dark fiber, that unbundled dark fiber most closely addresses the impairment faced by competing carriers.

382. The record indicates that when competing carriers self-deploy transport facilities, they often deploy fiber optic facilities that are activated at OCn levels.[1170] However, this does not mean that a carrier that requires OCn capacity can necessarily self-deploy transport facilities. As we have described above, large fixed and sunk costs are required to self-provision fiber transport facilities.[1171] These fixed and sunk costs include obtaining rights-of-way, the costs of fiber, the cost of deploying the fiber, and the optronic equipment necessary to activate the fiber.[1172] Unlike "lit" unbundled transport, however, users of unbundled dark fiber provide the optronic equipment necessary to activate the dark fiber strands.[1173] While users of unbundled dark fiber provide optronics, the record indicates that a substantial part of the costs of deploying transport facilities is in the sunk cost of burying, or otherwise deploying the fiber.[1174] Moreover, the

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[1170] *See, e.g.*, AT&T Oct. 4, 2002 *Ex Parte* Letter.

[1171] *See supra* para. 371 (describing the costs and barriers to entry associated with deploying transport facilities); *see also* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 15-17 (describing the sunk costs associated with fiber deployment).

[1172] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1, 15-17 (describing the electronic equipment a competitive LEC must deploy to activate dark fiber).

[1173] We note that the cost of electronics, such as those used to activate dark fiber, are not sunk costs because they can be moved to another location upon exit from the market.

[1174] AT&T, for example, states that the monthly costs of operating interoffice transport between two collocations is allocated roughly as follows: 50% to the cost of the transport ring, 30% to equipment and other costs, and 20% to collocation. AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 13. Conversent states that it has spent over $30 million in capital costs for purchasing electronics while it estimates that replicating its fiber network in eastern Massachusetts would cost $81 million. Letter

costs associated with actually deploying the fiber transmission facilities are all sunk costs, such as obtaining rights-of-way, digging up streets or attaching cabling to poles.[1175] Therefore, the barriers to deployment faced by carriers that use unbundled dark fiber are very similar to those of other competing carriers. However, carriers that request dark fiber transport, used to provide relatively high-capacity transport, must purchase and deploy necessary electronics and collocations, thus requiring them to deploy those facilities for which there is no impairment. Our finding of impairment recognizes that the costs of deploying fiber, especially the sunk costs, make self-deployment of transport facilities uneconomic in some situations.

383. The record also indicates that competing carriers using unbundled dark fiber transport can operate more efficiently than when using lit transport. Conversent and El Paso argue that they can offer a higher level of service because unbundled dark fiber integrates more efficiently into their networks by reducing the number of failure points and by providing them greater control including the ability to test for quality and maintenance.[1176] Commenters also argue that dark fiber more precisely addresses impairment they face in

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from Christi Shewman, Counsel for Conversent, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 2, 5 (filed Sept. 24, 2002) (Conversent Sept. 24, 2002 *Ex Parte* Letter). Similarly, El Paso states that the electronics necessary to light an OC12 loop require $80,000 in capital investment. El Paso Oct. 4, 2002 *Ex Parte* Letter, Attach. *Regulatory Briefing* at 8.

[1175] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1; *see also supra* para. 371.

[1176] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1, 12-13. Specifically, dark fiber reduces the number of points of failure within a local transport network and is integrated more easily into the competitor's network. *See id.*; Conversent Comments at 7; Conversent Oct. 10, 2002 *Ex Parte* Letter at 3.

deploying fiber.[1177] We agree that dark fiber allows competing carriers to provide service without incurring the high sunk costs of self-deploying transport, especially when the fiber is not being used by the incumbent LEC. Competing carriers assert that this also avoids unnecessary digging of streets.[1178] Commenters also argue that unbundled dark fiber users must deploy significant facilities including optronic equipment and collocation in order to light the dark fiber.[1179] We find that this investment advances the facilities deployment goals of the Act.[1180]

384. Although the record indicates that dark fiber can be self-provisioned in some circumstances or obtained on a wholesale basis from carriers other than the incumbent LEC, the record does not reveal the specific routes where such transport is available.[1181] In addition, dark fiber transport is

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[1177] *See* El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1. For example, Conversent asserts that it is not impaired without the electronics needed to activate transport facilities, but is impaired without the actual facilities. *See* Conversent Dec. 24, 2002 *Ex Parte* Letter at 2.

[1178] *See, e.g.*, Stephanie A. Joyce, Counsel for Dominion Telecom, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 4 (filed Jan. 28, 2003) (Dominion Jan. 28, 2003 Dark Fiber *Ex Parte* Letter).

[1179] *See, e.g.*, Letter from Scott Sawyer, Vice President—Regulatory Affairs, Conversent, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1-3 (filed Dec. 6, 2002) (Conversent Dec. 6, 2002 *Ex Parte* Letter); El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 1.

[1180] While it could be argued that permitting use of unbundled dark fiber acts as a disincentive to alternative transport deployment by allowing competing carrier to obtain the fiber transport without incurring sunk costs that a self-deploying carrier would incur, we find that, through the application of our triggers, described below, any disincentive effect is minimized.

[1181] *See supra* paras. 378-379 (describing record evidence of competitive LEC transport deployment); NuVox *et al.* Comments, Affidavit of Robert Riordan, (MFN Riordan Aff.) at paras. 2-4; BOC UNE

generally not available in most areas of the country. In fact, in many areas, competing carriers are unable to self-deploy and have no alternative to the incumbent LEC's facilities.[1182] On the current record, we are unable to identify those specific routes where competing carriers are not impaired without access to unbundled dark fiber.[1183] As we describe below, however, we delegate to the states the authority to collect and analyze more specific evidence of transport deployment on a route-specific basis, applying uniform national triggers that measure self-provisioning or wholesale alternative transport availability to determine routes where competitive carriers are not impaired without access to incumbent LEC unbundled dark fiber transport.[1184]

385. *Access to Dark Fiber.* Because dark fiber requires an incumbent LEC to unbundle whole fibers, the Commission

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Fact Report 2002 at III-1 to III-14. As discussed, above at para. 376, we find that transport is appropriately reviewed on a route-specific basis.

[1182] Conversent asserts that of its 166 dark fiber transport routes throughout six New England states, alternative dark fiber is available on only 25 routes (approximately 15%). Conversent Sept. 24, 2002 *Ex Parte* Letter, Attach. at 4-5; *see also* Conversent Comments at 8-9.

[1183] As described below, we develop specific triggers for states to identify where competing carriers are not impaired without access to dark fiber due to the ability to self-deploy or the availability of third-party wholesale alternatives. We find that our national determination that requesting carriers are impaired without access to dark fiber transport, subject to a more granular analysis, benefits competitors that operate where no competitive alternatives exist and where self-provisioning is not possible. *See, e.g.*, Conversent Comments at 4; BrahmaCom Reply at 1-2; Maine CLEC Coalition Comments at 4-5.

[1184] As discussed in detail below, we find on a national basis that requesting carriers are not impaired without dark fiber transport along point-to-point routes when a state commission finds that either three competing carriers have self-provided transport facilities on that route (irrespective of whether they make available wholesale capacity), or two competing carriers make available wholesale dark fiber transport on that route. *See infra* Part VI.C.4.d.

previously granted states "the flexibility to establish reasonable limitations and technical parameters for dark fiber unbundling."[1185] We affirm that conclusion.[1186] Additionally, requesting carriers state that they have been denied nondiscriminatory access to unbundled dark fiber in a number of ways.[1187] We note that many state commissions have directly addressed these issues through arbitrations and other proceedings.[1188] For example, states have addressed the pre-ordering and ordering processes including determinations about what information incumbent LECs must make available about the location of dark fiber,[1189] the extent to which

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[1185] *UNE Remand Order*, 15 FCC Rcd at 3854-55, para. 352. Again, we note the difficult balance between putting spare incumbent LEC fiber to use and the carrier-of-last-resort-obligations and planning interests of the incumbent LEC. As noted in the *UNE Remand Order*, some states such as Texas have developed processes to allow for the equitable use of dark fiber while addressing the legitimate concerns of incumbent LECs. *See UNE Remand Order*, 15 FCC Rcd at 3854, para. 352 n.694 (affirming as reasonable some of the parameters the Texas Commission developed regarding the use of unbundled dark fiber).

[1186] Accordingly, our determination moots Mpower's petition asking the Commission to establish a "first-come, first-served" policy for access to dark fiber as we grant states the flexibility to develop rules that incorporate policy objectives such as reservation policies and meeting carrier of last resort obligations. MGC Communications Petition for Clarification on Reconsideration and Request for Expedited Treatment, CC Docket Nos. 96-98, 95-185 at 4-6 (filed Feb. 17, 2000) (Mpower Feb. 17, 2000 Petition for Clarification). Additionally, the Mpower Petition for Clarification is moot to the extent that it requests the Commission to take action before May 17, 2000. Mpower Feb. 17, 2000 Petition for Clarification at 2-4, 6.

[1187] Conversent Oct. 10, 2002 *Ex Parte* Letter at 1-4; El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 2-11.

[1188] *See, e.g.*, El Paso *et al.* Comments at 36-75; El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter at 3-10.

[1189] *See, e.g.*, El Paso *et al.* Comments at 58-80 (describing decisions made by the states of Texas, New Hampshire, Rhode Island, New Jersey and Maine); El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter at 7-10

incumbent LECs must allow or perform splicing and other preparatory work,[1190] and access to dark fiber transport that traverses through intermediate central offices where the competitive LEC is not collocated.[1191] We recognize the hard work of the state commissions to make dark fiber meaningfully available and endorse such efforts here. We retain rule 51.307(e) which establishes an incumbent LEC's obligation to provide technical information about the incumbent LEC's network facilities.[1192]

(ii) DS3 Capacity Transport

386. We conclude on a nationwide basis that requesting carriers are impaired on a route-specific basis without access to unbundled DS3 transport. We make this determination based on the high fixed and sunk costs associated with self-providing transport and the lack of route-specific evidence showing alternative facilities as well as the difficulty of

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(describing decisions made by the states of Texas, New Hampshire, Rhode Island, New Jersey, and Maine).

[1190] *See, e.g.*, El Paso *et al.* Comments at 39-44, 50, 53-57 (describing decisions made by the states of Texas, Indiana, Massachusetts, New Hampshire, Rhode Island, and the District of Columbia); Conversent Oct. 10, 2002 *Ex Parte* Letter at 1-4; El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter, Attach. at 3-7 (describing decisions made by the states of California, Texas, Indiana, Massachusetts, New Hampshire, Rhode Island, and the District of Columbia). To the extent that access to unbundled dark fiber requires some routine modification of an existing facility, our discussion, *infra* Part VII.D, may provide additional clarity. *See, e.g.*, El Paso *et al.* Comments at 53-57 (describing existing fiber facilities not attached to termination equipment).

[1191] *See, e.g.*, El Paso *et al.* Comments at 36-39 (describing decisions made by the states of Massachusetts, Rhode Island, New Jersey and Maine).

[1192] Section 51.307(e) states, "[a]n incumbent LEC shall provide to a requesting telecommunications carrier technical information about the incumbent LEC's network facilities sufficient to allow the requesting carrier to achieve access to unbundled network elements consistent with the requirements of this section."

overcoming these obstacles at this transmission level. The need for DS3 capacity transport indicates that a carrier is aggregating a substantial amount of traffic from end users.[1193] However, as we discuss above, the cost of deploying a transmission facility does not vary significantly with capacity because much of the cost of the facility is related to the deployment itself, such as trenching or attaching to poles, rather than the cost of the cabling and other equipment.[1194] Moreover, the ability to economically justify transport deployment is based on the reasonable expectation of recovering the costs of deployment over time.[1195] Therefore, due to scale economies, we find, generally, that the inability to recover the fixed and sunk costs of deploying transport facilities, coupled with the barriers to obtaining rights-of-way, impairs the ability of requesting carriers to self-provision DS3 transport.

387. There is substantial evidence that carriers lease non-incumbent LEC transport at the DS3 capacity where competitive alternatives are available or self-deploy transport when multiple DS3 transport circuits are required to carry

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[1193] A DS3 circuit has the equivalent capacity to 672 voice-grade loops or 28 DS1 loops.

[1194] *See* AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 12 (stating that transmission electronics generally do not scale with demand); *see also supra* para. 371 (describing costs and other barriers to entry associated with deploying transport facilities).

[1195] The potential revenue stream associated with a single DS3 is far less than the revenue stream associated with aggregating traffic that requires an OCn circuit, yet the cost to deploy the facilities can be practically the same. *See* AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 12 (stating that transmission electronics generally do not scale with demand). Accordingly, it takes a longer period of time for a competitive LEC to recover its costs of deploying a single DS3 transmission facility.

aggregated traffic along a route.[1196] The record indicates that competitive transport facilities exist in a number of areas and are often being made available on a wholesale basis at the DS3 level.[1197] However, while some local markets have competitive alternatives, the record does not establish with route-specificity where such deployment has occurred.[1198] While a few competing carriers have stated in the aggregate that there is an alternative transport facility on up to approximately 50 percent of routes they use, these carriers do not serve all geographic areas, especially rural areas, and have

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[1196] *See supra* para. 379 (discussing competitive wholesale supply). Importantly, where alternative transport is available, DS3 circuits are very commonly a standard unit of wholesale provisioning.

[1197] AT&T uses non-incumbent LEC facilities, including its own facilities, for a substantial portion of its DS3 transport while Allegiance uses non-incumbent LEC facilities for 30% of its DS3 transport. AT&T Comments at 150 (citing confidential data); Allegiance Comments at 28. Thus, the record indicates that when a carrier aggregates sufficient traffic to require DS3 transport, the carrier is not impaired by the fixed costs associated with negotiating for alternative facilities and obtaining a cross-connect.

[1198] BOC UNE Fact Report 2002 at III-2, Table 1 (stating that, on average, only 13% of BOC wire centers have a single competing carrier collocated using non-incumbent transport facilities). However, in the largest 25 MSAs served by each BOC, 35% of BOC wire centers have a single competing carrier collocated using non-incumbent transport facilities. BOC UNE Fact Report 2002 at III-3, Table 2. Additionally, the BOCs argue that larger central offices are more likely to have competitors collocate alternative transport facilities. BOC UNE Fact Report 2002 at III-3, Table 3 (showing that at least one competitive fiber-based collocation exists in 48% of central offices with over 5,000 business lines). Finally, the BOCs argue that the largest metropolitan areas have a significant number of competitive LEC networks. BOC UNE Fact Report 2002 at III-7, Table 4 (showing an average of 15 competitive networks operate in the top 50 MSAs). As discussed above, we find that transport is appropriately reviewed on a route-specific basis. *See supra* para. 376.

not shown that the alternative is available to them.[1199] Although we find that alternative facilities are not available to competing carriers in a majority of areas, the record indicates that, particularly in dense urban areas, alternative transport facilities are readily available. As we describe below, however, we delegate to the states the authority to collect and analyze more specific evidence of transport deployment on a route-specific basis, applying uniform national triggers that measure self-provisioning or wholesale alternative transport availability to determine routes where competitive carriers are not impaired without access to incumbent LEC unbundled DS3 transport.[1200]

388. *Limitation on Multiple DS3 Circuits and OCn.* Consistent with our analysis of dark fiber transport, we find that as a carrier develops traffic along a route consisting of multiple DS3s worth of capacity, it can overcome barriers to entry including sunk costs and economies of scale such that it

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[1199] For example, Mpower states that, in 50% of the central offices in which Mpower is collocated, at least one alternative transport provider also is collocated. Mpower Reply at 13-16; Mpower Oct. 11, 2002 *Ex Parte* Letter, Attach. at 5. In the offices in which Covad is collocated in four of Covad's major markets (San Francisco, Chicago, New York Tri-State, and Washington, D.C.), Covad observes that one or more competitors have terminated non-incumbent fiber in over 51% of these central offices. Covad Comments, CC Docket No. 96-98, Declaration of Mark Shipley and Marie Chang at para. 18, Table 1 (filed June 11, 2001).

[1200] As discussed in detail below, we find on a national basis that requesting carriers are not impaired without DS3 transport along point-to-point routes when a state commission finds that either three competing carriers have self-provided transport facilities on that route (irrespective of whether they make available wholesale capacity), or two competing carriers make available wholesale DS3 transport on that route. *See infra* Part VI.C.4.d. We find that our national determination that requesting carriers are impaired without access to DS3 transport, subject to a more granular analysis, benefits small business competitors that operate where no competitive alternatives exist and where self-provisioning is not possible. *See, e.g.*, BrahmaCom Reply at 1-2; Maine CLEC Coalition Comments at 4-5.

can prepare to self-deploy transmission facilities or optronic equipment to activate dark fiber.[1201] Indeed, our record shows that carriers add capacity in increments of DS3 capacity as demand for additional transport increases. Based on the predominance of record evidence, we establish a maximum number of twelve unbundled DS3 transport circuits that a competing carrier or its affiliates[1202] may obtain along a single route.[1203] In making this decision, we considered a wide range of evidence in the record. For instance, BellSouth states that one-third of its end offices require only three DS3 transport circuits or less.[1204] Meanwhile, competitive LECs assert that it is not economic for them to deploy transport facilities with less than ten to eighteen DS3 circuits on a route.[1205]

[1201] *See supra* para. 371 (describing costs and barriers to entry associated with deploying transport facilities).

[1202] We incorporate the Act's definition of "affiliate" to define the extent to which a carrier or its affiliates may obtain multiple DS3 circuits on a route. *See* 47 U.S.C. § 153(1).

[1203] Because our record indicates that the cost of deploying transport can be greater than the cost of deploying some fiber loops, we set the limit on unbundled DS3 circuits at 12 per route, per carrier, higher than the permissible number of DS3 loops per location. *See supra* Part VI.A.4.b.(ii)(c)(iii) (imposing a limitation of two DS3 capacity loops per location).

[1204] Letter from Jonathan Banks, General Attorney, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Feb. 5, 2003) (BellSouth Feb. 5, 2003 Transport *Ex Parte* Letter) (explaining that two-thirds of its end offices are served by fewer than 18 DS3 equivalent circuits while one-third of its end offices require only three DS3 circuits or less, and suggesting that scale economies can be achieved at these capacities); *see also* High-Capacity Loop and Transport Petition (petitioning to eliminate unbundling for all loop and transport circuits greater than DS1 capacity on the basis that competing carriers are not impaired in further deployment because these facilities have been extensively deployed and are available on a wholesale basis).

[1205] *See* Letter from Steven A. Augustino, Counsel for SNiP LiNK, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket

Moreover, the record shows that carriers have deployed transmission facilities at the twelve DS3 level and above to serve enterprise customers,[1206] in areas across the country,[1207]

Nos. 01-338, 96-98, 98-147 at 1-2 (filed Feb. 7, 2003) (SNiP LiNK Feb. 7, 2003 Transport *Ex Parte* Letter) (stating that SNiP LiNK built its own transport facilities when it required the equivalent of 12 DS3 circuits); AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 14 (stating that it makes economic sense for AT&T to deploy transport only when it requires 12 or more DS3s on a route); AT&T Nov. 25, 2002 *Ex Parte* Letter at 1 & Attach. A (stating that, compared to incumbent LEC special access prices, it is economic for AT&T to self-deploy transport only when it has 18 DS3s worth of traffic); Letter from Thomas Jones, Counsel for Allegiance Telecom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Feb. 3, 2003) (Allegiance Feb. 3, 2003 Transport *Ex Parte* Letter) (stating that it is generally economic for Allegiance to deploy facilities when it requires 10 DS3s on a route); Letter from Cathleen A. Massey, Vice President—External Affairs, XO Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Feb. 5, 2003) (XO Feb. 5, 2003 Transport *Ex Parte* Letter) (contending that it is generally economic for XO to deploy facilities when it requires 10 to 12 DS3s on a route); Letter from Patrick J. Donovan, Counsel for Cbeyond, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Feb. 13, 2003) (Cbeyond Feb. 13, 2003 *Ex Parte* Letter) (stating that any limitation "should be close to or at the OC-12 level"); *but see* AT&T Fea/Giovannucci Reply Decl. at para. 28 ("AT&T often engages in joint builds with other CLECs in order to share the high fixed costs of construction.").

[1206] *See* KMC Duke Aff. at paras. 3, 6, 10 (describing how KMC has deployed over 2100 route miles of local SONET transport networks in several geographic markets, an average of 60 miles each, serving customers using self-deployed and unbundled loops at the DS1 capacity and higher); AT&T Comments, Attach. E, Declaration of Michael E. Lesher and Robert J. Frontera at para. 9 (citing AT&T's 17,000 fiber route miles); *see also supra* Part IV (describing the evolution of the market for local telecommunications services); SNiP LiNK Feb. 7, 2003 Transport *Ex Parte* Letter at 1-2 (stating that SNiP LiNK built its own transport facilities when it maximized the use of an OC12 circuit).

[1207] For example, KMC serves markets ranging between 100,000 and 750,000 in population using its extensive fiber transport network. KMC Duke Aff. at para. 3; *see also* BOC UNE Fact Report 2002 at III-7, Table

and to provide wholesale transmission services and facilities to carriers.[1208] In limiting the unbundling obligation on a route to twelve DS3 circuits per carrier, we recognize that we are engaging in an act of line-drawing.[1209] Nevertheless, we draw this line as informed by an extensive record and based on our predictive judgment that this point will serve as an incentive for further facilities deployment while still allowing competitive entrants the opportunity to use unbundled transport at lower capacity levels, and to use dark fiber for higher capacities, to attain sufficient scale to self-deploy.[1210]

389. The Commission previously unbundled all transport capacities up "through OC192 and such higher capacities as evolve over time."[1211] We do not perpetuate such broad

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4 (showing that several competitive LECs operate networks, even in much smaller MSAs with an average of 4.8 networks in MSAs ranked 101 to 125 and 3.4 competitive LEC networks in MSAs 126-150). We also note that the costs of deploying fiber in rural areas can be substantially lower, thus requiring a lower aggregation of traffic sufficient to take on the costs of fiber deployment. *See supra* para. 371.

[1208] BOC UNE Fact Report 2002 at III-6 through III-11 (describing "carrier-agnostic" wholesale suppliers and CAPs); Coalition of Competitive Fiber Providers Reply at 1-2 ("Coalition members provide competitive fiber-based transport services and dark fiber to competitive local exchange carriers . . . collocated in ILEC central offices.").

[1209] *See* ALTS Feb. 13, 2003 *Ex Parte* Letter at 4 (stating that an "acceptable trade-off would logically occur at 12 DS-3s.").

[1210] *See infra* para. 403 (indicating the need to draw bright-line rules for the sake of market certainty and administrative practicality).

[1211] *UNE Remand Order*, 15 FCC Rcd at 3842-43, para. 323. Typically, carriers employ OCn circuits in OC3, OC12, OC48, and OC192 capacity intervals. *See supra* note 1154 (describing capacity equivalencies). We also note that most carriers operate their transport networks at OC48 levels as the associated electronics are only incrementally more expensive in relation to the large jump in available scale. AT&T Comments at 134; AT&T Oct. 4, 2002 *Ex Parte* Letter, Attach. at 12 (stating, "transmission electronics . . . generally do not scale

unbundling today. As described above, we find that requesting carriers are not impaired without lit transport beyond twelve DS3s on a route due to the ability to self-provision transport facilities, or to self-provision optronic equipment necessary to activate unbundled dark fiber. Because we find no impairment above a twelve DS3 level and transport below this level is unbundled, we need not unbundle OCn interface transmission facilities. Rather, we find that dark fiber and multiple DS3 circuits provide reasonable substitutes for OCn interface circuits at these capacities and find that requesting carriers are not impaired without OCn or SONET interface transport.[1212]

(iii) DS1 Capacity Transport

390. We find that requesting carriers generally are impaired without access to DS1 capacity transport.[1213] We make this

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with demand (*e.g.*, an OC48 is not generally 4 times as costly as an OC12)").

[1212] Commenting parties provide differing interpretations of the availability of unbundled transport using SONET technology, as set forth in the *UNE Remand Order*. *See UNE Remand Order*, 15 FCC Rcd at 3843, para. 324; NuVox *et al.* Comments at 93-94; BellSouth Comments at 56 ("The Commission has not required ILECs to provide unbundled access to SONET rings."). Because we find that competing carriers are not impaired without access to optical capacity transport circuits, there is no need to clarify whether competing carriers can access a circuit directly provided on a SONET interface. However, because an incumbent LEC's interoffice transport facilities often operate using SONET technology, we clarify that incumbent LECs must unbundle DS1 and DS3 capacity circuits and dark fiber (on which a competing carrier may use SONET technology provided by its own electronics) on a point-to-point basis where subject to an unbundling obligation. Specifically, we note that this obligation exists regardless of the underlying technology the incumbent employs, and includes point-to-point transport provided on SONET rings operated by incumbent LECs. *See also infra* Part VII.D (discussing incumbent LEC unbundling obligations for specially constructed network facilities).

[1213] Unlike the DS3 cap we establish today, we do not find it prudent to establish a limit on the number of unbundled DS1 transport circuits a

determination based on the high entry barriers associated with deploying or obtaining transport used to serve relatively few end-user customers and the lack of route-specific evidence showing sufficient alternative deployment.

391. The record indicates that competing carriers generally cannot self-provide DS1 transport. A carrier requiring only DS1 capacity transport between two points typically does not have a large enough presence along a route (generally loop traffic at a central office) to justify incurring the high fixed and sunk costs of self-providing just that DS1 circuit.[1214] This is because a requesting carrier in need of DS1 capacity transport faces the same fixed and sunk costs as other carriers deploying transport or using alternatives, but faces substantially higher incremental costs across its customer base than a carrier requesting higher capacity transport.[1215]

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carrier may lease on a route. Instead, we are convinced that both operational and pricing efficiencies exist that serve to limit a competing carrier's incentive to over-subscribe DS1 transport on a route, even where unbundled DS3 transport is not available. Specifically, our record shows that the coordination of large multiples of DS1 circuits quickly becomes burdensome and much more costly than using larger capacity DS3 transport. *See, e.g.*, Letter from Henry Hultquist, Senior Attorney, WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. (filed Oct. 29, 2002) (WorldCom Oct. 29, 2002 Loops and Transport *Ex Parte* Letter).

[1214] DS1 transport is the lowest standard capacity level of dedicated transport, although dedicated transport can be ordered at the DS0 capacity. Unbundled DS0 dedicated transport is not used by competing carriers as a practical matter.

[1215] *See supra* para. 371 (discussing transport costs and entry barriers). Even some incumbent LECs concede that some impairment exists at the DS1 level according to the impairment tests they propose. For example, while BellSouth asserts that transport at the DS3 level and above should not be unbundled, BellSouth proposes to use a trigger proxy at the DS1 level. Letter from Robert T. Blau, Vice President—Executive and Federal Regulatory Affairs, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338 and 02-33, Attach. at 8 (filed Jan. 16, 2003) (BellSouth Jan. 16, 2003 *Ex Parte* Letter); *see also* Letter

392. The record also indicates that, although competitive fiber has been deployed in many areas, DS1 transport is not generally made available on a wholesale basis[1216] and the record lacks the specificity for us to analyze appropriately transport on a route-specific basis.[1217] At this time, while we find that the market for competitive wholesale DS1 transport is nascent, even where higher capacity competitive transport is already made available on a wholesale basis, we find that applying a wholesale availability trigger is appropriate. While carriers suggest that a wholesale market for DS1 transport has not developed due to operational and cost considerations, we find that technological advances may

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from W. W. Jordan, Vice President—Federal Regulatory, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-321, 01-338, Attach. at 3 (filed Aug. 26, 2002) (BellSouth/Time Warner Aug. 26, 2002 Transport and Performance Measures *Ex Parte* Letter) (advocating a trigger be applied to determine impairment for all dedicated transport). Similarly, SBC proposes (in the alternative to removing unbundling for all DS1 and above transport) that unbundling for DS1 transport should be determined according to triggers similar to those adopted in the *Pricing Flexibility Order*. SBC Reply at 153.

[1216] While it is relatively common for carriers to obtain wholesale transport at higher capacities, we have very limited evidence of carriers using alternative DS1 transport. AT&T "almost never" uses non-incumbent LEC facilities for its DS1 transport while it uses non-incumbent LEC facilities a substantially higher percentage of its DS3 transport. AT&T Comments at 149-50 (citing confidential data); *see also* Cbeyond Nov. 22, 2002 Transport *Ex Parte* Letter, Declaration of Richard Batelaan at para. 11 (concluding that "alternative providers for DS1 level transport are at best nascent"); NuVox *et al.* Comments, Affidavit of Edward J. Cadieux (NuVox Cadieux Aff.) at para. 9 (where "third-party providers exist they either do not offer dedicated transport at the DS1 level (only at the DS3 level or higher) or that operational interfaces at the DS1 level are too problematic for third-party providers to be a viable facility source."); ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3 (stating that competition at the DS3 capacity level does not equate to competition for DS1 transport).

[1217] As discussed in para. 376 above, we find that transport is appropriately reviewed on a route-specific basis.

allow this market to become practical.[1218] It is our predictive judgment that wholesale provision of DS1 transport will develop as technology improvements make wholesale provision of DS1 circuits economic such that carriers have an incentive to invest in the equipment necessary to provide this capacity service.[1219] As we state below, however, we delegate to the states the ability to collect and analyze more specific evidence of transport deployment on a route-specific basis, applying a uniform national trigger that measures wholesale alternative transport availability to determine routes where competitive carriers are not impaired without access to incumbent LEC unbundled DS1 transport.[1220]

393. We also note that unbundled DS1 transport is often used by competing carriers in a loop/transport combination when collocation at the customer's end-office is uneconomic.[1221] In this manner, DS1 transport is used by competing carriers to expand into new service areas and may be used as a transition mechanism for carriers just entering an

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[1218] Competing transport providers would have to install additional multiplexing equipment and refine back office systems to handle DS1 interface wholesale transport. KMC Duke Aff. at para. 13; NuVox Cadieux Aff. at para. 9 (where "operational interfaces at the DS1 level are too problematic for third-party providers to be a viable facility source"); *see also* Eschelon Kunde Aff. at para. 11 (describing the costs associated with using multiple transport vendors including the added complexity of managing multiple contracts, ordering processes, maintenance processes, and bills).

[1219] Therefore, our wholesale availability test, explained in detail below, while not likely to have an immediate impact at the DS1 capacity level, ensures that our analysis is flexible enough to accommodate innovation in the marketplace.

[1220] As discussed in detail below, we find on a national basis that requesting carriers are not impaired without DS1 transport along point-to-point routes when a state commission finds that two competing carriers make available wholesale DS1 transport on that route. *See infra* Part VI.C.4.d.

[1221] *See infra* Part VII.A (describing combinations of UNEs).

area, or for carriers serving a customer in an area only as a supplement to its primary operations in another area. In these situations, carriers are able to enter new markets to begin accumulating traffic, but do not have sufficient traffic to self-deploy.[1222] Under our analysis, new market entrants will have the ability to access unbundled DS1 transport, or access DS1 transport from multiple competing carriers.

d. Route-Specific Review Conducted by States Applying Federal Triggers

394. The Supreme Court required that the Commission apply "*some* limiting standard" to its impairment analysis.[1223] In this regard, the Court advised that "[t]he Commission cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent's network," including whether requesting carriers are able to "self-provision, or . . . purchas[e] from another provider."[1224] We also recognize that the D.C. Circuit questioned how the Commission could find that an element like transport "is significantly deployed on a competitive basis," but remains available as an unbundled element from the incumbent LEC.[1225] As discussed above, we make affirmative national findings of impairment and non-impairment for transport at the national level, as supported by the record. However, evidence suggests that requesting carriers likely are not impaired without access to unbundled transport in some particular instances, but evidence in the record is not sufficiently detailed to identify these specific routes.

[1222] For the reasons outlined above, nationwide availability of DS1 transport will benefit small business competitors, especially those just entering a new market, as well as small business telecommunications consumers that use DS1 capacity services.

[1223] *Iowa Utils. Bd.*, 525 U.S. at 388.

[1224] *Id.* at 389.

[1225] *USTA*, 290 F.3d at 422.

Therefore, as described in detail below, we delegate to states a fact-finding role to identify where competing carriers are not impaired without unbundled transport, pursuant to two triggers.

395. Commenting parties suggested various proposals for how the Commission should apply a more granular impairment analysis for dedicated transport as suggested in the *Triennial Review NPRM*. We review these proposals here as they inform our conclusions about an appropriate level of granularity.

396. While the competitive LEC community generally supports unlimited unbundling of all transport,[1226] in the alternative, competitive LECs generally support removing the unbundling obligation for transport on a route-specific basis only when a transport market on that route is fully competitive.[1227] ALTS and CompTel proposed that the Commission adopt the Department of Justice merger guidelines to determine when each transport route is sufficiently competitive because such a test will ensure that no alternative transport provider, or the incumbent LEC,

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[1226] *See, e.g.*, ALTS *et al.* Comments at 60-61; NuVox *et al.* Comments at 84-91.

[1227] *See, e.g.*, Letter from H. Russell Frisby, President, CompTel, and John Windhausen, President, ALTS, to William F. Maher, Chief, Wireline Competition Bureau, FCC, CC Docket No. 01-338, Attach. at 1-4 (filed Oct. 8, 2002) (ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter); ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 5-6; Letter from Douglas I. Brandon, Vice President—External Affairs and Law, AT&T Wireless, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-3 (filed Dec. 20, 2002) (ATTWS Dec. 20, 2002 *Ex Parte* Letter). Indeed, competitive LECs opposed geographic granular analysis that did not consider route-specific factors, or applied only to broader geographic areas. *See, e.g.*, ALTS Feb. 13, 2003 *Ex Parte* Letter at 3-4; Letter from Praveen Goyal, Senior Counsel, Covad, to Michelle Carey, Chief, Competition Policy Division, Wireline Competition Bureau, FCC, CC Docket No. 01-338 at 4-5 (filed Jan. 21, 2003) (Covad Jan. 21, 2003 *Ex Parte* Letter).

maintains market power along every route for which no impairment is found. We reject this proposal because, as we describe above, this introduces a standard other than the impairment standard we have adopted more generally for determining unbundling obligations.[1228] Additionally, market power analyses are neither easily verifiable nor administratively simple for purposes of our instant inquiry; they rely on market share analysis that is complicated and requires considerable time and expense to prepare.[1229] Moreover, such an analysis is likely to be controversial and difficult to resolve.[1230] We conclude that a route-specific bright-line standard is more manageable for the parties and administratively more practical.[1231]

397. SBC, Verizon, and BellSouth all propose that the Commission find no impairment for all DS3 and greater transport, including dark fiber.[1232] In the alternative, they and

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[1228] *See supra* Part V.B.1.d.(iii) (describing why the Commission does not adopt an antitrust-style market power analysis as a part of its impairment analysis).

[1229] *See Pricing Flexibility Order*, 14 FCC Rcd at 14271-72, para. 90.

[1230] *Id.*

[1231] *See, e.g.*, WorldCom Reply at 127 (suggesting a bright-line standard of four wholesale competitors on a route); Allegiance Reply at 47 (suggesting a bright-line standard of four wholesale competitors on a route); Letter from Thomas Jones, Counsel for Allegiance, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-5 (filed Jan. 30, 2003) (Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter) (proposing a bright-line standard of 2 competitive wholesale providers or 3 competitive providers on a route as sufficient to satisfy the impairment standard); XO Jan. 28, 2003 Transport *Ex Parte* Letter at 1-2 (advocating a bright-line route-based standard of at least four competitors collocated at both end points of a transport route, three of which must offer wholesale transport).

[1232] *See, e.g.*, Verizon Comments at 105-13; BellSouth Comments at 90-102; SBC Comments at 96. To the extent that these arguments are based on the availability of incumbent LEC tariffed "special access"

Qwest argue that if the Commission should adopt a trigger to identify impairment, the Commission should adopt a competitive trigger based on those in the Commission's *Pricing Flexibility Order* for special access.[1233] In general, these incumbent LECs argue that wherever and whenever they have received pricing flexibility for special access, they should not be required to unbundle transport.[1234] The record indicates that incumbent LECs have qualified for special access pricing flexibility in numerous MSAs throughout their regions, almost exclusively by meeting the triggers based on special access revenues.[1235] Because the revenue trigger

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services serving as an alternative to UNEs, we address these arguments in our impairment analysis, *supra* Part V.B.1.d.(iii). *See* Verizon Dec. 17, 2002 *Ex Parte* Letter at 1, 8-11 (arguing that competitive LECs are not impaired without unbundled transport because they use incumbent LEC special access transport services).

[1233] *See, e.g.*, Qwest Comments at 32-39. We note that while their various proposals may differ slightly, they are all based expressly on the triggers set forth in the Commission's *Pricing Flexibility Order*. *Pricing Flexibility Order*, 14 FCC Rcd 14221.

[1234] *See, e.g.*, Qwest Comments at 32. Although they argue non-impairment should be identified based on Phase I pricing flexibility, in the alternative, the BOCs argue that Phase II pricing flexibility should apply as a non-impairment trigger. Phase I pricing flexibility for certain special access services is triggered on an MSA basis when (1) 15% of wire centers have one collocated competitor using non-incumbent transport, or (2) in wire centers accounting for at least 30% of revenues for these services, at least one competitor has collocated using non-incumbent transport. Phase II pricing flexibility is triggered on an MSA basis when (1) 50% of wire centers have one collocated competitor using non-incumbent transport, or (2) in wire centers accounting for at least 65% of revenues for these services, at least one competitor has collocated using non-incumbent transport. *See* 47 C.F.R. § 69.709.

[1235] *See supra* note 1234 (describing the *Pricing Flexibility Order* triggers based, alternatively, on competitive transport-based collocation or special access revenues); *see also* NewSouth Dec. 12, 2002 *Ex Parte* Letter at 2 (describing details of where and how BellSouth has received special access pricing flexibility); BellSouth Oct. 15, 2002 Transport and Loop *Ex Parte* Letter, Attach. at 5 (stating that BellSouth has received

requires only a single collocated competitor and the purchase of substantial amounts of special access in a concentrated area, this test provides little indication that competitors have self-deployed alternative facilities, or are not impaired outside of a few highly concentrated wire centers. Additionally, the pricing flexibility trigger based on alternative transport-based collocation requires no consideration of the ubiquity of the competitive transport facilities throughout an MSA. The measure does not indicate that the competitive fiber facilities connect to collocations in any other incumbent LEC central offices. The measure may only indicate that numerous carriers have provisioned fiber from their switch to a single collocation rather than indicating that transport has been provisioned to transport traffic between incumbent LEC central offices. Therefore, we find that Commission approval for special access pricing flexibility, finding that competing carriers have made "irreversible sunk investments," is not sufficiently tailored to identify where requesting carriers are not impaired without unbundled transport.[1236]

398. There is no disagreement among the parties that alternative transport facilities have been deployed and are available as alternatives to unbundled transport in some locations. However, the record does not identify the location of alternative transport facilities, and parties dispute the degree to which competitive facilities must be deployed before competing carriers are no longer impaired without unbundled transport. We need not resolve in this Order the factual identification of where alternative facilities exist.

Phase I and Phase II special access pricing flexibility in 100% of nation's top 150 MSAs in its region); Verizon Dec. 17, 2002 *Ex Parte* Letter at 7 (stating that Verizon has pricing flexibility in 37% of its wire centers); Qwest Oct. 11, 2002 Transport *Ex Parte* Letter, Attach. at 5 (stating that Qwest has been granted pricing flexibility in 33 of its 45 MSAs, many of which are not national top 100 MSAs).

[1236] *See supra* Part V.B.1.d.(iii) (distinguishing the purposes of the "impair" standard and the pricing flexibility standard).

Rather, we are able to discern impairment at the national level based on aggregated data. However, because we recognize that the record is insufficiently detailed to make more precise findings regarding impairment, we delegate to the states, subject to appeal back to this Commission if a state fails to act, a fact-finding role to determine on a route-specific basis where alternatives to the incumbent LECs' networks exist such that competing carriers are no longer impaired.[1237]

399. As discussed above, the record indicates that competing carriers have self-deployed significant quantities of local fiber transport facilities. Moreover, the record indicates that competing carriers often use transport provided by competitive transport providers where available, rather than facilities provided by the incumbent LEC. However, substantial barriers to self-deploying transport including high fixed and sunk costs indicate that carriers are impaired in many instances without access to incumbent LEC facilities. Therefore, we adopt two triggers designed to identify where carriers are not impaired without access to incumbent LEC transport based on the two primary ways carriers can overcome impairment: (1) the ability to self-deploy facilities, and; (2) access to third party alternatives.[1238] We adopt both triggers to best address the guiding principles provided by reviewing courts.[1239]

[1237] Appeals of state inaction shall be filed as pursuant to the procedures we adopt today. *See supra* Part V.E.

[1238] *See Iowa Utils. Bd.*, 525 U.S. at 389; *see also supra* Part V.B (discussing the impair standard).

[1239] We expect states to implement both triggers as each addresses only part of the analysis. Were we to adopt (or states to implement) only a test for the ability to self-provision transport, two carriers could conceivably deploy transport facilities and make them available to other carriers such that competing carriers are not impaired without access to the incumbent LEC's facilities, but the incumbent would remain subject to an unbundling obligation. Likewise, were we to adopt (or states to implement) only a test for wholesale availability, it is possible that

400. The first trigger is designed to identify routes along which the ability to self-provide transport facilities is evident based on the existence of several competitive transport facilities. Specifically, where three or more competing carriers, not affiliated with each other or the incumbent LEC, each have deployed non-incumbent LEC transport facilities along a specific route, regardless of whether these carriers make transport available to other carriers, we find that to be sufficient evidence that competing carriers are capable of self-deploying.[1240] The second trigger is designed to identify where competitive wholesale alternatives are available. Specifically, we find that competing carriers are not impaired where competing carriers have available two or more alternative transport providers, not affiliated with each other or the incumbent LEC, immediately capable and willing to provide transport at a specific capacity along a given route between incumbent LEC switches or wire centers.[1241] If a state commission finds no impairment for a specific capacity of transport on a route, the incumbent LEC will no longer be required to unbundle that transport along that route, according to the transition schedule adopted by the state commission.

401. Both triggers we adopt today evaluate transport on a route-specific basis. We define a route, for purposes of these tests, as a connection between wire center or switch "A" and wire center or switch "Z."[1242] Even if, on the incumbent

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wholesale opportunities may not exist despite the ability of several carriers to overcome the barriers to deploy along a route. We note that where a state makes a finding of non-impairment under either trigger, there is no reason to apply the other trigger on that route.

[1240] *See infra* para. 405.

[1241] *See infra* para. 413.

[1242] *See, e.g.*, Letter from Steven A. Augustino, Counsel for SNiP LiNK *et al.*, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3-6 (filed Jan. 24, 2003) (SNiP LiNK *et al.* Jan. 24, 2003 Transport *Ex Parte* Letter); Letter from Michael H. Pryor, Counsel for NewSouth, to Marlene H. Dortch,

LEC's network, a transport circuit from "A" to "Z" passes through an intermediate wire center "X," the competitive providers must offer service connecting wire centers "A" and "Z," but do not have to mirror the network path of the incumbent LEC through wire center "X." We find that analyzing transport at this very granular level will provide the most accurate determination of impairment. BellSouth's and other BOC's fiber-based collocation proposals are based solely on the presence of alternative transport at one end of a route such that when one end of a route is competitive (a central office with fiber-based collocation), no unbundled transport will be available in or out of that competitive central office.[1243] These proposals would effectively leverage the existence of competition in one location to remove the unbundling obligation to perhaps several other locations without any proof that a requesting carrier could self-provide or utilize alternative transport to reach those other locations.[1244] A route-specific test is sufficiently granular to avoid falsely identifying as competitive a route between two offices.[1245] Also, the route-based triggers we adopt allow

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Secretary, FCC, CC Docket Nos. 01-338, 96-98, Attach. at 2 (filed Feb. 3, 2003) (NewSouth Feb. 3, 2003 Transport *Ex Parte* Letter); Letter from Jonathan Askin, General Counsel, ALTS, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 1 (filed Jan. 29, 2003) (ALTS Jan. 29, 2003 Transport *Ex Parte* Letter); Covad Jan. 21, 2003 *Ex Parte* Letter at 1, 4-5.

[1243] *See, e.g.*, BellSouth and Time Warner Telecom propose finding no impairment for unbundled transport where "3 or more competitive transport providers exist in either A or Z wire center." BellSouth/Time Warner Aug. 26, 2002 Transport and Performance Measures *Ex Parte* Letter, Attach. at 3.

[1244] *See, e.g.*, ALTS *et al.* Comments at 67.

[1245] *See* ALTS Jan. 29, 2003 *Ex Parte* Letter at 1; SNiP LiNK *et al.* Jan. 24, 2003 Transport *Ex Parte* Letter at 3-6; Covad Jan. 21, 2003 *Ex Parte* Letter at 4-5. As ALTS and CompTel state in a metaphor, "[A] passenger at Dulles Airport seeking to fly to San Francisco would not ask an airline: 'Do any of your flights have seats available?' Instead, the

carriers to avoid the costs and operational problems associated with cobbling together multiple vendor links to complete a route between two incumbent LEC central offices.

402. We consider, but decline to adopt, a test based on each link between two incumbent LEC central offices.[1246] While this may have benefits of being easier to implement, a link-specific test raises practical operational problems of linking together facilities of multiple providers to complete a single circuit, sometimes called daisy-chaining. That is, a competing carrier may have to coordinate multiple vendors for a single route if the complete route a competing carrier requests goes through an intermediate central office and one of the two links comprising the complete route is not unbundled.[1247] This almost inevitably would raise costs, increase provisioning time intervals, and make maintenance and repair more difficult.[1248] We also consider, but decline to adopt, an analysis of transport markets on a broader scale, such as a city, MSA, or other zone and reject these approaches as too over- and under-inclusive.[1249] That is, there may be actual impairment on some routes, but not others within a wider geographic area. Thus, a finding of impairment or non-impairment throughout an area could permit unbundling on routes where no impairment exists, or

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question would be: 'Do any of your flights to San Francisco have seats available?'" ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter at 1.

[1246] By a "link," we mean a direct connection between two incumbent LEC switches or wire centers, without passing through any intermediate wire centers or switches. On the other hand, a "route" may connect wire centers or switches that are not directly connected to each other.

[1247] ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3, 6 & Attach. A (describing the costs associated with not using a whole route approach and multi-span routes).

[1248] *Id.*

[1249] *See supra* para. 397 (discussing incumbent LEC suggestions to incorporate the MSA-based *Pricing Flexibility Order* triggers into the Commission's impairment analysis of transport).

foreclose access to unbundled transport on routes where impairment does exist.

403. As the Commission has done in other circumstances, we adopt these triggers as a mechanism for determining impairment. Adopting triggers with objective criteria can avoid the delays caused by protracted proceedings and can minimize administrative burdens.[1250] Our selection of various thresholds, as in rate setting, is not an exact science.[1251] Rather, the thresholds are based on our agency expertise, our interpretation of the record, and our desire to provide bright-line rules to guide the industry in implementing section 251.[1252] Our effort to select triggers that precisely measure impairment for transport is hampered by the lack of verifiable data concerning competitor's facilities. Given these constraints, we adopt triggers that, in our reasoned judgment, minimize administrative burdens while still reasonably applying our impairment standard.

404. We also expect that the triggers we adopt will produce desirable incentives for competing carriers to build out their transport networks. As a policy matter, we find that unbundling can create a disincentive for competitive LECs to deploy transport. After incurring substantial fixed and sunk costs, a carrier that has deployed transport facilities must continue to compete against carriers able to obtain unbundled transport without incurring any large costs. Moreover, the

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[1250] *Pricing Flexibility Order*, 14 FCC Rcd at 14267-68, para. 84.

[1251] *United States v. FCC*, 707 F.2d 610, 618 (D.C. Cir. 1983); *see also Pricing Flexibility Order*, 14 FCC Rcd at 14276, 14297-98, paras. 96, 144.

[1252] Although ALTS and CompTel do not support a test based on a strict count of the number of alternative transport providers, they urge the Commission to set numbers "at a level sufficient to insure meaningful competition, and that the viability of the providers is clear and unquestioned." ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 2.

triggers will benefit competing carriers that invest or have invested in their own transport facilities by attracting additional wholesale customers to mitigate the costs of deployment if their facilities trigger a finding of no impairment that eliminates unbundling.

(i) Self-Provisioning Trigger

405. We delegate to state commissions the authority to declare requesting carriers not to be impaired without unbundled transport when there is sufficient evidence that facilities deployment is possible on a particular route, regardless of the availability of wholesale transport. Reviewing courts have instructed the Commission to identify those areas in which lack of access to an incumbent LEC's facilities does not present an insurmountable barrier to entry as evidenced by the suitability of "multiple, competitive supply."[1253] As noted above, we give substantial weight to actual commercial deployment of an element by competing carriers.[1254] Therefore, our trigger identifies existing examples of deployment by multiple competitive LECs on a route-specific basis. Specifically, we delegate to states authority to determine where three or more unaffiliated competing carriers each have deployed transport facilities on a route.[1255] We find that, when three carriers, in addition to the incumbent LEC, have each made sunk investment in transport facilities on a

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[1253] *USTA*, 290 F.3d at 427; *see supra* Part V.B. (discussing the framework for the Commission's impairment analysis).

[1254] *See supra* Part V.B. (discussing the impair standard).

[1255] Allegiance proposes a granular impairment analysis to identify where carriers can self-provision very similar to this test. *See* Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 2-4; Letter from Thomas Jones, Counsel for Conversent, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (filed Feb. 5, 2003) (Conversent Feb. 5, 2003 *Ex Parte* Letter) (supporting the transport impairment test Allegiance proposes in its January 30, 2003 *ex parte* letter).

route, that is a sufficient indication that sunk costs, economies of scale, and other barriers to deploying transport facilities do not present an insurmountable barrier on a particular route such that requesting carriers are not impaired without access to unbundled transport.

406. Each counted self-provisioned facility along a route must be operationally ready to provide transport into or out of an incumbent LEC central office.[1256] We find that the competitive transport facilities counted to satisfy this trigger must terminate in a collocation arrangement which may be arranged either pursuant to contract, tariff or, where appropriate, section 251(c)(6) of the Act.[1257] We find it beneficial to count for purposes of this test all types of collocation arrangements, including those that may not qualify for collocation under section 251(c)(6).[1258] This

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[1256] This requirement is intended to preclude counting competitive facilities before the facility is capable of operation on that route. For example, the incumbent LEC must have fully provisioned the collocation arrangement (*e.g.*, provided space and power) before the route could be considered complete. In this same regard, states should not review the financial stability of alternative transport provisioners, except to the extent the carrier remains in operation. *See infra* para. 415. States also shall consider carriers that have self-deployed intermodal transport facilities that meet the requirements of this trigger.

[1257] Collocation may be in a more traditional collocation space or fiber can be terminated on a fiber distribution frame, or the like, to which any other competing carrier collocated in that central office can obtain a cross-connect under nondiscriminatory terms. *See* MFN Riordan Aff. at paras. 6-13 (describing Verizon's CATT arrangement for terminating transport fibers). Our impairment analysis recognizes alternatives outside the incumbent LEC's network regardless of the authority under which they came to exist.

[1258] *See* Coalition of Competitive Fiber Providers Petition for Declaratory Ruling, CC Docket No. 01-77 (filed Mar. 15, 2001) (stating that competitive fiber providers must reach a central office in order to be able to provide alternative transport to competing carriers collocated there, but are often denied access to section 251(c)(6) collocation rights);

provides an incentive to incumbent LECs to enable competitive LEC, including the "carrier-agnostic" wholesale transport providers, identified by incumbent LECs, to develop their transport networks by developing viable alternatives to unbundled transport.[1259]

407. We set the number of competitive facilities at three for several reasons. First, we want to be assured that the route can support "multiple, competitive" transport networks. Second, setting the trigger at three competitive facilities allows for the possibility that some network owners may not be interested in providing wholesale services, in contrast with the wholesale availability trigger which counts only actual wholesalers.[1260] Third, due to the sunk nature of transmission facilities, facilities will remain on a route even if a competitive transport provider exits the market.[1261] Furthermore, we note that where, through the application of this trigger, impairment for unbundled transport at a particular capacity is no longer found, substantial competitive transport facilities, and perhaps other capacities of UNE transport will be available.[1262] Therefore, if this trigger removes unbundled transport at a particular capacity level, carriers will remain capable of serving end-user customers in all areas. This will provide certainty for new market entrants.

Coalition of Competitive Fiber Providers Reply at 3-9; ALTS *et al.* Comments at 69; Cbeyond Nov. 22, 2002 *Ex Parte* Letter at 2.

[1259] MFN Riordan Aff. at paras. 6-13; *see* BOC UNE Fact Report 2002 at III-6.

[1260] *See, e.g.*, KMC Duke Aff. at paras. 12-14 (indicating KMC's lack of interest in providing wholesale transport services on its network).

[1261] UNE Fact Rebuttal Report at 20-24, 41-43.

[1262] Transport facilities may also be available from the incumbent LEC as a special access service. As noted in our earlier general discussion, the presence or absence of these facilities is not a factor in our impairment analysis.

408. The competitive transport providers identified to satisfy this trigger on a route must be unaffiliated with the incumbent LEC and each other.[1263] This requires that separate facilities are counted and avoids counting as a true alternative a provider that uses the transport facilities of the incumbent LEC or another alternative provider to provide service on that route.[1264] We find, however, that when a company has obtained dark fiber from another carrier on a long-term IRU basis and activated that fiber with its own optronics, that facility should be counted as a separate, unaffiliated facility.[1265] As described above, the record suggests that

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[1263] Affiliated companies will be counted together in order to prevent gaming. We use the term affiliated and affiliate as the Act defines "affiliate." Section 3 of the Act defines the term "affiliate" as "a person that (directly or indirectly) owns or controls, is owned or controlled by, or is under common ownership or control with, another person. For purposes of this paragraph, the term 'own' means to own an equity interest (or the equivalent thereof) of more than 10 percent." 47 U.S.C. § 153(1). As discussed above, we find, for the limited purposes described herein, that when a company acquires dark fiber, but not lit fiber, from another carrier on a long-term IRU or comparable basis, that facility should be counted as a separate, unaffiliated facility. *See* ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3 (stating that, for a route-specific test, "a facilities-based transport provider must offer transport capacity via fiber it either owns, or else leases from a third party via long term lease.").

[1264] Thus, the self-provisioning trigger may be satisfied on a route by a combination of carriers' facilities that were self-deployed to provide wholesale transport to other carriers and facilities self-deployed by carriers to serve their own needs.

[1265] ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3 (stating that, for a route-specific test, "a facilities-based transport provider must offer transport capacity via fiber it either owns, or else leases from a third party via long term lease."). For purposes of this test, a competing carrier that has obtained dark fiber transport facilities from the incumbent LEC on an IRU basis should be considered to operate its own unaffiliated facilities. We believe that dark fiber IRU-type contracts protect against short-term gaming of this trigger. Moreover, we do not want to foreclose incumbent LECs from negotiating dark fiber IRU agreements with

competing carriers are able to engage and have engaged in joint efforts to deploy transport, so that imposing a trigger that requires each facility on a route to have been separately deployed would fail to consider and may inhibit such cooperative deployment efforts.[1266] However, each competitive transport facility on a route counted to satisfy the trigger must terminate in a collocation arrangement in the incumbent LEC central office. This demonstrates that true alternatives to the incumbent LEC's network have been deployed[1267] and is consistent with the Supreme Court's interpretation of impairment.[1268] There is no requirement that the competing carriers identified to meet this trigger offer wholesale access to their transport networks.

409. *Specific Application.* As described above, the record indicates that competing carriers generally cannot self-

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competitive LECs. Because we want to be certain of the independent ownership of the transport facilities, we find that consideration of transport facilities transferred on an IRU basis is limited to dark fiber and does not include "lit" fiber IRUs.

[1266] AT&T Fea/Giovannucci Reply Decl. at para. 28 (describing coordinated deployment projects); *see* Letter from Stephen W. Crawford, General Counsel, El Paso Global Networks, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 6 (filed Feb. 5, 2003) (El Paso Feb. 5, 2003 Transport *Ex Parte* Letter) (asserting that only separately deployed facilities should be considered); Letter from Jonathan D. Lee, Vice President—Regulatory Affairs, CompTel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 12-13 (filed Feb. 6, 2003) (CompTel Feb. 6, 2003 Dark Fiber *Ex Parte* Letter) (asserting that only separately deployed facilities should be considered).

[1267] As the Commission explained in the *Pricing Flexibility Order*, the lease of facilities from the incumbent does not indicate the type of lasting competitive infrastructure that can provide competition. *See Pricing Flexibility Order*, 14 FCC Rcd at 14270-71, para. 88.

[1268] *Iowa Utils. Bd.*, 525 U.S. at 389 (discussing "self-provision" and looking for "the availability of elements *outside* the incumbent's network") (emphasis added).

provide DS1 transport. Therefore, we find that the self-provisioning trigger described above should not apply at the DS1 level.

410. *State Analytical Flexibility.* In applying the self-provisioning trigger, we find that actual competitive deployment is the best indicator that requesting carriers are not impaired and, therefore, emphasize that this quantitative trigger is the primary vehicle through which non-impairment findings will be made. However, we recognize that this trigger identifies only the existence of *actual* competitive facilities and does not address the *potential* ability of competitive LECs to deploy transport facilities along a particular route.[1269] Therefore, when conducting its analysis, a state must consider and may also find no impairment on a particular route that it finds is suitable for "multiple, competitive supply," but along which this trigger is not facially satisfied. States must expressly base any such decision on the following economic characteristics: local engineering costs of building and utilizing transmission facilities; the cost of underground or aerial laying of fiber; the cost of equipment needed for transmission; installation and other necessary costs involved in setting up service; local topography such as hills and rivers; availability of reasonable access to rights-of-way; the availability or feasibility of alternative transmission technologies with similar quality and reliability; customer density or addressable market;[1270] and existing facilities-based competition. We believe that it is important to delegate this limited additional analysis because

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[1269] For example, incumbent LECs claim that competing carriers have deployed transport networks that entirely "bypass" parts of the incumbent LECs' networks. *See* BOC UNE Fact Report 2002 at III-4; *WorldCom v. FCC*, 238 F.3d. 440, 462 (D.C. Cir. 2001) (quoting *Pricing Flexibility Order*, 14 FCC Rcd at 14275-76, para. 95).

[1270] The record indicates that competitive transport facilities are most likely to connect central offices with large addressable markets. *See* BOC UNE Fact Report 2002 at III-3, Table 3.

states are best positioned to analyze the characteristics of local markets where national aggregation does not appear possible.[1271]

411. In other instances, by contrast, states may identify impairment on specific routes that facially satisfy the self-provisioning trigger, but where some significant barrier to entry exists such that deploying additional facilities is entirely foreclosed. For example, a state might find impairment, despite the facial satisfaction of this trigger, if a municipality has imposed a long-term moratorium on obtaining the necessary rights-of-way such that a competing carrier can not deploy new facilities. In these circumstances, a state commission may petition the Commission for a waiver of application of the trigger until the impairment to deployment identified by the state no longer exists. Nevertheless, as explained in the following Subpart, a state must make a finding of non-impairment under the wholesale availability trigger if two or more carriers make transport available at wholesale, pursuant to the trigger.

(ii) Competitive Wholesale Facilities Trigger

412. Because the record demonstrates that competing carriers can obtain transport facilities from alternative providers offering wholesale dark fiber, DS3, and DS1 capacity transport along certain routes, carriers are not impaired without access to unbundled transport along those routes at the capacities made available. However, the record before the Commission is not granular enough to determine along which routes multiple alternative providers are able and willing to offer service to other competing carriers on a point-to-point basis. Therefore, we delegate to state commissions

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[1271] *See, e.g.*, Michigan Commission Comments at 4-5; Massachusetts Department Comments at 3; Kansas Commission Comments at 4; Ohio Commission Comments at 10; Oklahoma Commission Comments at 4.

the fact-finding role of identifying on which routes requesting carriers are not impaired without unbundled transport at a specific capacity when there is evidence that two or more competing carriers, not affiliated with each other or the incumbent LEC, offer wholesale transport service completing that route.[1272] This test ensures that transport can readily be obtained from a firm using facilities that are not provided by the incumbent LEC.

413. We choose two competitive wholesale providers as the appropriate trigger because it ensures the suitability of "multiple, competitive supply" and will provide an incentive for new transport facilities deployment while allowing competitive pressures from the wholesalers to control pricing and terms.[1273] A competing carrier that is considering whether to deploy transport facilities for the purpose of providing a wholesale offering is likely to be encouraged to deploy if its deployment will eliminate transport priced at TELRIC, which is often lower than incumbent LEC tariffed special access rates. Because we want to provide an incentive for competing carriers to deploy facilities, we avoid setting the required number of wholesalers as high as competing carriers

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[1272] Although wholesale providers may lease entire transport ring offerings, for purposes of this trigger, a wholesale offering must be made available on a route-specific basis. *See* El Paso Feb. 5, 2003 Dark Fiber *Ex Parte* Letter at 5-6.

[1273] *USTA*, 290 F.3d at 427. Although Allegiance initially advocated the use of the Department of Justice market concentration guidelines, Allegiance asserts that two is an appropriate number of competitive wholesale providers on a route to identify non-impairment. Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 1-4. We also find, given the way we have developed our triggers for transport, that setting the number of wholesale providers at three or more would conflict with our determination that three self-provisioned facilities on a route indicates a lack of impairment on that route. *See supra* para. 407.

suggest.[1274] Finally, we find that two wholesale providers, in addition to the incumbent LEC, should provide competitive pressures on pricing and terms and avoid "umbrella pricing" while providing incentives to deploy.[1275]

414. The competitive transport providers identified to satisfy this trigger must be unaffiliated with the incumbent LEC and each other.[1276] This requires that separate facilities

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[1274] *See, e.g.*, WorldCom Reply at 127; ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter at 2; El Paso Feb. 5, 2003 Transport *Ex Parte* Letter at 2-4. If we established a higher number than two as the threshold, such as four, to ensure the market is fully competitive, the first potential entrant might be deterred from deploying facilities by the prospect of facing competition from providers using unbundled transport for a long time—until three other competitors deployed facilities. With a threshold of two, the first entrant to deploy and wholesale facilities need only wait until one other entrant deploys and wholesales facilities before a finding of no impairment is warranted and they no longer face competition with transport priced at TELRIC.

[1275] Umbrella pricing occurs when a smaller market entrant is able to price its product or service immediately below the price of the larger market leader, but does not have sufficient market presence to affect the market leader's price. *See* CARLTON & PERLOFF, MODERN INDUSTRIAL ORGANIZATION 111 (3d ed.) (stating, "[i]t is often asserted that a dominant firm provides a *pricing umbrella* for smaller firms. As long as competing firms price at or below the level of the dominant firm, they will be able to find buyers."). We find that the risk of umbrella pricing is high when only one wholesale competitor enters the market in competition with the incumbent LEC, but is substantially reduced when two or more competitors provide wholesale transport in competition with the market leader, the incumbent LEC. *See also* Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 4 (stating, "the choice of two non-ILEC wholesalers . . . avoids the extreme inefficiencies created by a duopoly market structure."). We therefore recognize the balance between encouraging facilities deployment and ensuring that competitors have access to facilities on a competitive basis.

[1276] We use the term affiliated and affiliate as the Act defines "affiliate." Section 3 of the Act defines the term "affiliate" as "a person that (directly or indirectly) owns or controls, is owned or controlled by, or is under common ownership or control with, another person. For purposes

are counted and avoids counting as a true alternative a provider that uses the lit transport facilities of the incumbent LEC or another alternative provider to provide service on that route. We find, however, that when a wholesale transport provider has obtained dark fiber from another carrier, including unbundled dark fiber from the incumbent LEC, and activates and operates that fiber with its own optronic equipment, that facility should be counted as a separate, unaffiliated facility.[1277] Additionally, the competitive transport providers must be operationally ready and willing to provide the particular capacity transport on a wholesale basis along the specific route.[1278] This safeguards against counting alternative fiber providers that may offer service, but do not yet have their facilities terminated or collocated in the incumbent LEC central office, or are otherwise unable

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of this paragraph, the term 'own' means to own an equity interest (or the equivalent thereof) of more than 10 percent." 47 U.S.C. § 153(1).

[1277] Competing carriers that offer wholesale DS1 and DS3 transport using unbundled dark fiber will be counted for purposes of this test if they activate and operate the unbundled dark fiber with their own electronic equipment. However, the availability of unbundled dark fiber will not affect the application of this wholesale availability trigger as applied to dark fiber. Thus, a provider of wholesale dark fiber must own the fiber it wholesales. *See* Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 3 (stating that the Commission should consider as viable wholesale alternatives competing carriers that obtain dark fiber on a long-term basis and activate that fiber with their own electronics); ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 3 (stating that, for a route-specific test, "a facilities-based transport provider must offer transport capacity via fiber it either owns, or else leases from a third party via long term lease.").

[1278] *See* ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 3; Cbeyond Nov. 22, 2002 *Ex Parte* Letter at 2 (asserting that the Commission should ensure that competitive fiber providers are able to extend facilities into incumbent central offices and establish a presence in that central office that will permit ready and economical access to competing carriers). States also shall consider carriers that utilize intermodal transport facilities to provide wholesale transport capacity to the extent that they satisfy the requirements of this trigger.

immediately to provision service along the route.[1279] Moreover, the quality and terms of the competing carriers' wholesale offerings need not include the full panoply of services offered by incumbent LECs.[1280] Finally, for purposes of this test, the competitive transport provider must make the specific capacity transport services widely available. These provisions avoid counting alternative transport facilities owned by competing carriers not willing to offer capacity on their network on a wholesale basis.[1281]

415. We find that states should not evaluate any other factors, such as the financial stability or well-being of the competitive transport providers.[1282] Bankrupt competing carriers in Chapter 11 are often still providing service and, regardless of their financial status, the physical assets remain and may be bought by someone else and remain in service.[1283]

[1279] We believe that a connection such as a cross-connect between collocations, or the ability to connect to a competitive fiber termination panel, similar to the CATT tariffed offering by Verizon, qualifies as ready to provision, so long as other carriers can obtain such a connection in a reasonable and nondiscriminatory manner. *See* ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 3 (advocating that economical and reliable access to competitive transport facilities should be a prerequisite of a route-by-route analysis); MFN Riordan Aff. at paras. 6-11 (describing Verizon's CATT fiber termination offering). This ensures that the wholesale trigger counts only wholesale offerings that are readily available. The Commission's collocation rules provide clarity on nondiscriminatory principles including the right to interconnect with other collocated competing carriers by cross-connection. *See generally Collocation Remand Order*, 16 FCC Rcd 15435.

[1280] We expect that providers of alternative transport will have an incentive to offer competitive terms with those of the incumbent LEC.

[1281] We note that carriers with transport facilities on a route not willing to provide wholesale services will be counted in the self-provisioning trigger described above.

[1282] *See* ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 3.

[1283] UNE Fact Rebuttal Report at 20-24, 41-43.

Requiring states to determine the financial ability of competitive wholesale providers to provide service in the future could hamper economic recovery efforts of companies in financial distress. The key principle is that they are currently offering and able to provide service.[1284] Another factor that states should not consider is whether the incumbent LEC allows multi-vendor end-to-end testing of circuits.[1285] Our trigger looks at the entire requested route and so avoids the pitfalls of multi-span patchwork problems. Finally, we do not expect states to consider the economic feasibility of competitive offerings.[1286] Again, this type of review would engender great uncertainty and variability from state to state. We find that economic forces will act to constrain uneconomic wholesale offerings. Moreover, an offering that may not be feasible for one competing carrier may be feasible for another.

416. *Specific Application to Different Capacities.* Unlike the wholesale availability tests for lit DS1 and DS3 transport, unbundled dark fiber from the incumbent LEC is not to be considered a wholesale alternative for dark fiber. States may ensure that wholesalers of dark fiber have sufficient quantities of dark fiber available to satisfy current demand.[1287]

(iii) State Action Under Both Triggers

417. We expect states to complete their initial reviews applying the triggers and other analysis discussed above

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[1284] For instance, states should review whether the competitive transport provider has filed a notice to terminate service along the route in question.

[1285] *See* ALTS/CompTel Oct. 8, 2002 Transport *Ex Parte* Letter, Attach. at 3.

[1286] ALTS/CompTel Oct. 28, 2002 Transport *Ex Parte* Letter at 1-2 (asserting that alternative transport must be economically feasible).

[1287] *See* Allegiance Jan. 30, 2003 Transport *Ex Parte* Letter at 3; Conversent Feb. 5, 2003 *Ex Parte* Letter at 1.

within nine months from the effective date of this Order. Unbundled DS1, DS3, and dark fiber transport will remain available in all locations until the state commission determines that unbundled transport at particular capacities in specific locations is no longer required. States that conduct this review need only address routes for which there is relevant evidence in the proceeding that the route satisfies one of the triggers or the potential deployment analysis specified in this Part.[1288] To the extent that a state commission does not complete its proceedings in this nine month period,[1289] aggrieved parties may file a petition with this Commission demonstrating a state's failure to act pursuant to the procedures we outline today.[1290] We expect that states will require an appropriate period for competitive LECs to transition from any unbundled transport that the state finds should no longer be unbundled.

418. After completion of their initial reviews, we expect state commissions to conduct further granular reviews, pursuant to the procedures the state commissions adopt, to identify additional routes that satisfy the triggers. Such proceedings shall be completed within six months of the filing of a petition or other pleading submitted in accordance with the prescribed state commission procedures.[1291]

[1288] *See supra* para. 410.

[1289] By "complete," we mean that a state commission, upon receiving sufficient evidence, has an affirmative obligation to review the relevant evidence associated with any route submitted by an interested party, and to apply the trigger and any other analysis specified in this Part to such evidence.

[1290] As discussed above, if a state fails to act, we set forth procedures for the Commission to step into the role of the state. *See supra* Part V.E (discussing the role of the states).

[1291] Subsequent to the initial review, states have the flexibility to adopt reasonable and timely procedures for the periodic collection and evaluation of evidence indicating the satisfaction of the transport triggers on additional routes to remove unbundling obligations. For example, a

D. Local Circuit Switching

1. Summary

419. Pursuant to the approach set forth in the *Triennial Review NPRM*,[1292] the Commission adopts in this Order a more granular analysis for access to unbundled incumbent LEC local circuit switching. Specifically, based on the evidence in the record, we make the following determinations:

- *Local Circuit Switches Serving DS1 Capacity and Higher Enterprise Customers.* Based on evidence of competing carriers' widespread switch deployment to provide DS1 and above capacity service, we find on a national level that requesting carriers are not impaired without access to unbundled local circuit switching when serving DS1 enterprise customers. The states may rebut this finding by petitioning this Commission based on a granular review of specifically enumerated operational and economic criteria regarding facilities-based entry in specific markets.
- *Local Circuit Switches Serving Mass Market Customers.* We find on a national level that requesting carriers are impaired without access

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state may decide to include self-reporting information regarding alternative transport deployment in an annual or semi-annual report, either as an independent obligation or as part of the competitive carriers' periodic filing obligations. Alternatively, a state may decide to accept evidence of alternative deployment through petitions filed during prescribed filing windows or through rulemaking proceedings. Regardless of the procedures adopted, however, states that conduct further reviews must complete their evaluation of the evidence and reach a determination within six months of the filing of a petition or other pleading filed pursuant to the state procedures.

1292 *Triennial Review NPRM*, 16 FCC Rcd at 22806, para. 55.

> to unbundled local circuit switching when serving mass market customers. This finding is subject to a more granular review by the states pursuant to specifically enumerated triggers and other operational and economic criteria regarding facilities-based entry in specific geographic markets.[1293]

420. We organize our analysis of local circuit switching based on the customer market served and the corresponding loop capacity levels used to serve each customer market. These categories are reliable indicators of the ability of a requesting carrier to utilize self-deployed switches. Our analysis focuses on, among other things, the different processes for transferring loops from incumbent LEC switches to competing carriers' switches to serve enterprise customers and mass market customers.[1294]

421. In conducting our impairment analyses, we consider marketplace evidence of competitive LEC deployment of switches to provide competing local services to enterprise or

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[1293] *USTA*, 290 F.3d at 422. By establishing an overarching national framework while at the same time developing precisely the type of granularity test called for by the D.C. Circuit in *USTA*, our switching approach allows for the Commission to take advantage of, and build on, the wealth of knowledge and expertise within a national regime for local telephone competition consistent with the federal-state partnership envisioned by the Congress in the Act.

[1294] *See infra* Parts VI.D.5-6. As discussed below, we refer to this process of transferring, or cutting over, the loop as a "hot cut." Specifically, a hot cut refers to a process requiring incumbent LEC technicians to disconnect manually the customer's loop, which was hardwired to the incumbent LEC switch, and physically re-wire it to the competitive LEC switch, while simultaneously reassigning (*i.e.*, porting) the customer's original telephone number from the incumbent LEC switch to the competitive LEC switch. *See generally* Letter from Ron Gavillet, BiznessOnline.Com, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 7 (filed Feb. 14, 2003) (BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter).

mass market customers. Our impairment analysis with respect to DS1 enterprise customers (*i.e.*, customers that are or could be served by competitors using DS1 capacity and above facilities) recognizes the significant existing deployment of competitive LEC switches to serve such customers.[1295] The evidence in our record establishes that, in most areas, competitive LECs can overcome barriers to serving enterprise customers economically using their own switching facilities in combination with unbundled loops (or loop facilities). The facilities used to provide DS1 capacity or above services to enterprise customers typically are not pre-wired to incumbent LEC switches, allowing competing carriers to avoid the costs and service disruptions associated with "hot cuts"—the manual process by which customer lines are migrated to competitor switches. Enterprise customers also generally offer increased revenue opportunities and are more willing to enter long-term contracts, allowing competitive LECs a greater ability to recover the nonrecurring costs associated with providing service using their own switches. Accordingly, we make a national finding that competitors are not impaired without unbundled access to incumbent LEC local circuit switching when serving DS1 enterprise customers.[1296] We recognize, however, that special

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[1295] Specifically, the record reflects that competing carriers have deployed as much as 1,300 local circuit switches and are primarily utilizing these switches to serve enterprise customers. AT&T Comments at 208-09; BOC UNE Fact Report 2002 at II-1; *see also* Letter from Michael A. Peterson, Executive Vice President—Chief Operating Officer and Chief Financial Officer, ATX, to Hon. Kevin Martin, Commissioner, FCC, CC Docket No. 01-338 at 1-2, 4 (filed Jan. 22, 2003) (ATX Jan. 22, 2003 *Ex Parte* Letter) (stating that "ATX has learned (as have most other CLECs that ATX is familiar with) that local switching facilities can be used to compete for larger customers"). ATX states that, to its knowledge, "virtually all CLEC switches are today focused on serving DS1 customers." *Id.* at 3.

[1296] We define "DS1 enterprise customers" for our impairment analysis as customers for which it is economically feasible for a

circumstances may create impairment without access to unbundled local circuit switching to serve enterprise customers in particular markets. We thus allow states 90 days to petition the Commission to rebut the national finding in individual markets based on specific operational evidence regarding loop, collocation, and transport provisioning and specific economic evidence including the actual deployment of competitive switches and competitors' costs in serving enterprise customers.[1297]

422. In contrast, the record indicates that there has been only minimal deployment of competitive LEC-owned switches to serve mass market customers. The characteristics of the mass market give rise to significant barriers to competitive LECs' use of self-provisioned switching to serve mass market customers. Inherent difficulties arise from the incumbent LEC hot cut process for transferring DS0 loops, typically used to serve mass market customers, to competing carriers' switches. These hurdles include increased costs due to non-recurring charges and high customer churn rates, service disruptions, and incumbent LECs' inability to handle a sufficient volume of hot cuts. Accordingly, based on those barriers, we make a national finding that competitive carriers providing service to mass market customers are impaired without unbundled access to local circuit switching.

423. While our analysis could end with this conclusion, we nevertheless put in place concrete steps to mitigate these causes of impairment. Specifically, we ask the state commissions, within nine months of the effective date of this

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competing carrier to provide voice service with its own switch using a DS1 or above loop. We find that this includes all customers that are served by the competing carrier using a DS1 or above loop. After the state commission conducts a "multiline DS0 cut-off" inquiry, it includes customers who could be served by the competing carrier using a DS1 or above loop. *See infra* para. 497.

[1297] Most state commenters in this proceeding requested such a role. *See, e.g.*, NARUC Reply at 1-6.

Order, to approve and implement a batch cut migration process—a seamless, low-cost process for transferring large volumes of mass market customers—or to issue detailed findings that a batch cut process is unnecessary in a particular market because incumbent LEC hot cut processes do not give rise to impairment in that market. We believe that the institution of such processes could significantly reduce or eliminate the causes of impairment we identify, thereby enabling significantly greater facilities-based competition in mass market switching.

424. While the record establishes that, on a national level, requesting carriers are impaired without access to unbundled local circuit switching when serving mass market customers, we institute a more granular market-by-market analysis of impairment on a going forward basis. Specifically, we provide enumerated impairment triggers and criteria for the states to apply in individual markets. In conducting such an analysis, the states shall apply specific triggers to evaluate impairment in the specific market and, if the triggers are not satisfied, examine evidence of the potential for switch self-provisioning that takes into account current switch deployment, revenues, costs, processes, network architecture, and other factors in the market under consideration.[1298] If, after applying the triggers and examining evidence of switch deployment and other factors, a state commission has made a finding of impairment in any particular market, it must consider whether this impairment could be addressed by a narrower rule making unbundled switching temporarily

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[1298] As discussed below, a state must also examine factors including incumbent LEC performance in fulfilling unbundling, collocation, and other statutory obligations, difficulties in performing customer migrations between competitive LECs, difficulties in performing collocation cross-connects between competing carriers, and the significant cost disadvantages competitive carriers face in obtaining access to the loop and backhauling the circuit to their own switches. *See infra* paras. 456, 477-478.

available for a minimum of 90 days for customer acquisition purposes, rather than making unbundled switching available for an indefinite period of time.[1299] Finally, we ask the state commissions to conduct periodic reviews of impairment for unbundled local circuit switching.

425. We have asked the state commissions to take on these roles, because, as explained below, they require analysis of geographic and market specific factors.[1300] For example, hot

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[1299] We refer to this as "rolling use" because a competitive LEC gets access to unbundled local circuit switching for each customer acquisition for some defined period of time, and, at the end of this period, it must upgrade that customer to its own facilities.

[1300] Chairman Powell maintains that our switching analysis is flawed because, he claims, the economic criteria we set forth might be applied by the states in "divergent and subjective ways." *Chairman Powell Statement* at 8; *see also id.* at 8 n.20 (citing the "subjective, multi-factor impairment [switching] analysis"). This criticism is flatly inconsistent with the high-capacity loop and transport sections, which Chairman Powell proposed and the Commission unanimously approved. Just as in those sections, states must first employ triggers that examine actual deployment; only if the triggers are not met must the states apply criteria to assess whether entry is uneconomic. The criteria we provide for switching are no more "subjective" or susceptible to "divergent" application than are the criteria we provide for high-cap loops and transport. With respect to loop facilities, for example, the state must examine a range of factors to determine whether "competitive LECs could economically deploy loop transmission facilities at that location at the relevant capacity level." *See supra* para. 335. These factors include "evidence of alternative loop deployment at that location; local engineering costs of building and utilizing transmission facilities; the cost of underground or aerial laying of fiber or copper; the cost of equipment needed for transmission; installation and other necessary costs involved in setting service; local topography such as hills and rivers; availability of reasonable access to rights-of-way; building access restrictions/costs; [and] availability of similar quality/reliability alternative transmission technologies at that particular location." *Id.*; *see also id.* at para 410 (listing similar criteria for transport). The Commission provides no guidance on how these various factors are to be assessed and weighed. In contrast, we provide considerable guidance on how to assess and weigh

cut processes, as well as recurring and non-recurring charges for critical UNE inputs such as collocation, loops, and transport, often vary substantially between states.[1301] Within a state UNE loop rates can vary tremendously among zones.[1302] Revenue potential also varies dramatically, as retail rates can vary between states, by the type of customer, and within the state.[1303] State commissions, which have traditionally

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the factors for switching. For example, we make clear that evidence of enterprise switch deployment must be given "substantial weight" and the existence of a single competitively deployed mass market switch must be given "particularly substantial weight." *Id.* at para. 517.

[1301] According to one source, recurring loop rates can vary from $2.59 (Illinois) to $66.31 (Nevada), with a national average of $12.98. Billy Jack Gregg, *A Survey of Unbundled Network Element Prices in the United States* (Updated Jan. 1, 2003), <http://www.nrri.ohio-state.edu/documents/uneprices103.pdf> and <http://www.nrri.ohio-state.edu/documents/unepricesmatrix103_001.pdf>.

[1302] Many states have defined at least three geographic zones for the pricing of unbundled loops pursuant to section 252(d)(1) of the Act. 47 C.F.R. § 51.507(f) ("State commissions shall establish different rates for elements in at least three defined geographic areas within the state to reflect geographic cost differences.").

[1303] For a sample of 95 urban areas, residential rates for flat-rate service ranged from $14.68 (Phillipsburg, New Jersey) to $30.87 (West Memphis, Arkansas), including surcharges and taxes. Rates also sometimes vary substantially within a state, such as in California, where the residential rate is $16.39 in Salinas and $25.18 in Long Beach. *FCC Reference Book of Rates, Price Indices, and Household Expenditures for Telephone Service*, July 2002 (*FCC Reference Book*), at Table 1.3. According to data in a separate report, rural rates can be higher (Georgia), lower (Connecticut), or the same (Massachusetts) as urban rates. TELECOMMUNICATIONS: FEDERAL AND STATE UNIVERSAL SERVICE PROGRAMS AND CHALLENGES TO FUNDING, U.S. General Accounting Office Report, GAO-02-187, Feb. 2002 (GAO Report on Universal Service), at Appendix IV. The report notes that states used different methods of setting rates, including cost-based prices (such that rural rates are higher), value-of-service pricing (such that rural rates tend to be lower), and geographic rate averaging (such that rates are constant). A nationwide examination of rates showed that there is no consistent

exercised jurisdiction over intrastate telecommunications, have significantly closer proximity and more intimate knowledge of this information than does this Commission. They have greater knowledge, for instance, of how their intrastate retail rates are set, including where the implicit subsidies lie.[1304] They also have experience in making the kind of market-specific determinations we seek, from conducting interconnection arbitrations, making intrastate universal service decisions, and retail ratemaking.[1305] Accordingly, we believe that by setting specifically enumerated national triggers and criteria for impairment, which we explain below, to be applied by the state commissions, we can best provide the kind of granular impairment analysis called for by the statute.[1306]

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relationship between residential rates and the cost of providing service. *Id.* at 14-15. Business customers generally pay higher rates than residential customers. Based on the survey of 95 urban areas, on average business rates are double residential rates, at $44.80 for a business purchasing a single line versus $21.84 for a residential line. *FCC Reference Book*, at Tables 1.1 and 1.8; GAO Report on Universal Service at 16 ("For every type of place, average single-line business rates are approximately twice as high as residential rates.").

[1304] The existence of such subsidies and their impact on revenue opportunities is taken into account in our impairment analysis. *See supra* Part V.B.3.

[1305] *See infra* para. 496.

[1306] *See USTA*, 290 F.3d at 422 (directing the Commission to approach the section 251(d)(2) impairment analysis by considering "market-specific variations in competitive impairment."). The BOCs and Chairman Powell have previously advocated giving the states precisely the kind of role we give the states in this item. Chairman Powell previously argued that this Commission should consider whether "regulators with closer proximity and more intimate knowledge of the availability of non-incumbent elements (*e.g.*, state commissioners) should take a leading role in that [impairment] analysis." *Statement of Commissioner Michael K. Powell, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, 14 FCC Rcd 8694, 8721 (1999); *see also, e.g., id.* ("I

am somewhat skeptical that the Commission can give meaningful effect to the requirement that we assess the availability of non-incumbent elements and related geographic variation for all areas and markets in the nation. Although I think the Commission could potentially conduct such a sweeping assessment, at least in theory, that project would likely necessitate an exhaustive, fact-intensive inquiry to which I fear the Commission would devote inadequate time and resources."); *Statement of Commissioner Michael K. Powell, Dissenting in Part, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 16 FCC Rcd 1732, 1733 n.6 (1999) ("A preferable option would have been to provide some time-limited ability for state commissions that perceive their markets are different to remove elements from the national list . . ."). For their part, the BOCs have consistently advocated for a significant state role in analyzing impairment. In the UNE Remand proceeding, for example, U S WEST argued that "[a]s Commissioner Powell has observed, state commissions have 'closer proximity and more intimate knowledge' of these facts. They would thus be ideally positioned to track such localized data on a current basis and to determine where the Commission's unbundling presumptions would or would not apply." U S WEST Comments at 30, CC Docket No. 96-98 (May 26, 1999) (citation omitted). BellSouth asserted that "[i]t is imperative that the state commissions play an important part in defining network elements due to their knowledge of local market conditions and their extensive experience in making factual determinations about local competition issues." Letter from Robert T. Blau, Vice President—Executive and Federal Regulatory Affairs, BellSouth to Magalie Roman Salas, Secretary, FCC, CC Docket No. 96-98 (filed Feb. 11, 1999). GTE's general counsel, who is now general counsel for Verizon, stated that "because actual facilities deployment by CLECs varies by geographic area, type of customer and type of service, the Commission cannot adopt a single, 'one size fits all' national list of UNEs merely for the sake of simplicity and uniformity." Letter from William P. Barr, General Counsel, GTE Service Corporation, to Lawrence E. Strickling, Chief, Common Carrier Bureau, FCC, CC Docket No. 96-98 at 4 (filed March 1, 1999) (GTE Mar. 1, 1999 *Ex Parte* Letter). According to Verizon's general counsel, "[t]he rule must be tailored to accommodate variations in the facilities-based competition that already exists and that is currently possible through the use of available substitutes." *Id.* He also stated that "the Act clearly establishes a mechanism—individualized arbitrations conducted by state commissions—to take such variations into account. Any departure by the Commission from the localized determination of

426. This Commission will provide guidance to and exercise oversight of state commissions as they make these determinations. A party aggrieved by a state commission determination may seek a declaratory ruling from this Commission, and state commissions or other parties may at any time seek a declaratory ruling where necessary to remove uncertainty or eliminate a controversy.[1307] In addition, as the Commission articulated in the Local Competition Report and Order, an aggrieved party can always file a section 208 complaint with this Commission, alleging that the incumbent LEC or requesting carrier has failed to comply with the requirements of sections 251 and 252.[1308]

427. At the same time, we anticipate, and several parties have explicitly advocated, that state commission unbundling decisions will be incorporated into the arbitration agreement process; indeed, at least one party has argued that a failure to incorporate the unbundling analysis into the arbitration process would be legally suspect.[1309] Specifically, the Act

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what elements are essential for unbundling, which the Act's arbitration process enables, must be strictly justified and narrowly tailored." *Id.* SBC agreed and argued that "[s]tates may administer the national standards set by the Commission (*e.g.*, by applying the standards to specific geographic areas or making specific factual determinations) . . . ." SBC Comments at 18, CC Docket No. 96-98 (filed May 26, 1999).

[1307] *Local Competition Order*, 11 FCC Rcd at 15563-64, para. 125.

[1308] *Id.* at 15564, paras. 127-28. Indeed, we do not believe we could prohibit such petitions and complaints, which are statutory, from being filed at the Commission.

[1309] *See* GTE Mar. 1, 1999 *Ex Parte* Letter at 4 ("It is simply not rational to attempt to determine what is 'needed,' or what will 'impair' a CLEC's ability to compete, on a single, nationwide basis and without taking into account the particular variations associated with different geographic areas and types of service. And the Act clearly establishes a mechanism—individualized arbitrations conducted by state commissions—to take such variations into account. Any departure by the Commission from the localized determination of what elements are

provides that state commissions will resolve issues related to unbundling in conducting arbitrations between carriers and approving interconnection agreements and statements of generally available terms pursuant to the Act and regulations promulgated by this Commission. Under section 252, parties wishing to appeal such determinations may do so in federal district court.[1310] Accordingly, there is no exclusive right of appeal to this Commission.[1311]

428. Incumbent LECs argue that the Commission may not "punt" unbundling decisions to the states.[1312] They argue that, in those instances where impairment analysis requires a more granular approach, the Commission should establish "objective, carefully defined criteria for determining where unbundling is (and is not) appropriate."[1313] We agree. As

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essential for unbundling, which the Act's arbitration process enables, must be strictly justified and narrowly tailored.").

[1310] *See* 47 U.S.C. § 252(e)(6).

[1311] Chairman Powell finds fault with the fact that we do not provide for exclusive appeals of state commission switching decisions to this Commission. *Chairman Powell Statement* at 8. However, the suggestion that we should bar court review of state commission switching decisions seems unnecessary and potentially conflicts with the statute. *See Local Competition Order*, 11 FCC Rcd at 15563, para. 124 ("Pursuant to section 252(e)(6), a party aggrieved by a state commission arbitration determination under section 252 has the right to bring an action in federal district court."); 47 U.S.C. § 252(e)(6) ("In any case in which a State commission makes a determination under this section, any party aggrieved by such determination may bring an action in an appropriate Federal district court to determine whether the agreement or statement meets the requirements of section 251 of this title and this section.").

[1312] Letter from Herschel L. Abbott, Jr., Vice President—Government Affairs, BellSouth *et al.*, to Michael K. Powell, Chairman, FCC at 2, *in* Letter from Cronan O'Connell, Vice President—Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Nov. 19, 2002) (RBOC Joint Nov. 19, 2002 *Ex Parte* Letter).

[1313] RBOC Joint Nov. 19, 2002 *Ex Parte* Letter at 4.

explained in detail below, we do establish 'objective, carefully defined criteria for determining where unbundling is (and is not) appropriate.'[1314] These criteria—including our triggers – ensure that states undertake the tasks we give them consistently with the statute's substantive standards and stay within the parameters of federally established guidelines.[1315]

[1314] *See, e.g., infra* paras. 493-524.

[1315] Similarly, contrary to the dissents' assertions, we did not unlawfully delegate authority to the states. The dissents' assertions that we have failed to provide state commissions sufficient guidance in their decisionmaking is inconsistent and difficult to understand, *see Chairman Powell Statement* at 5-9; *Commissioner Abernathy Statement* at 7-8, as our approach is essentially identical to our treatment of dedicated transport and loops, which Chairman Powell proposed and both he and Commissioner Abernathy fully support. *See* Parts VI.C.4.d (transport), VI.A.4.b.(ii)(d) (loops). More importantly, the assertion is wrong.

For enterprise switches, we have made a nationwide finding of no impairment, which states can displace only by filing a petition for waiver with this Commission based on explicitly enumerated factors. For mass market switches, we make a nationwide finding of impairment and require the states to conduct a more granular analysis by applying mandatory and exhaustive federal triggers. Specifically, where a state commission determines that there are three or more carriers, unaffiliated with either the incumbent LEC or each other, that are serving mass market customers in a particular market using self-provisioned switches, the state must find no impairment in that market unless it petitions this Commission for a waiver of the trigger. A state must also find no impairment when it determines that there are two or more competitive wholesale suppliers of unbundled local circuit switching, unaffiliated with the incumbent or each other. Indeed it is exactly these kind of factors that Chairman Powell has advocated be used in the past. *See Commissioner Powell Second NPRM Statement* at 3 ("Further, to the extent other facilities-based competitors do not use elements of the incumbent's network, the presence of those competitors in a particular market should be probative in evaluating whether other firms would be impaired in their ability to provide service in that market absent mandated access to the incumbent's elements. It follows directly, then, that assessments of whether an element is necessary to provide service or whether failing to mandate access to that element would impair a new entrant's ability to provides service will vary significantly among different markets, states,

Accordingly, we are not 'punting' unbundling decisions to the states.

2. Background

429. We note that an important function of the local circuit switch is as a means of accessing the local loop.[1316] Competitive LECs can use their own switches to provide services only by gaining access to customers' loop facilities, which predominately, if not exclusively, are provided by the incumbent LEC. Although the record indicates that competitors can deploy duplicate switches capable of serving all customer classes, without the ability to combine those switches with customers' loops in an economic manner, competitors remain impaired in their ability to provide service. Accordingly, it is critical to consider competing carriers' ability to have customers' loops connected to their switches in a reasonable and timely manner.

430. In addition, incumbent LEC local circuit switching performs several specific functions, including connecting loop facilities to the network, switching loops to other lines and trunks, and providing service capabilities to customers, such as dial tone and vertical features. In prior orders addressing the unbundling of network elements, the Commission concluded that incumbent LECs must provide access to unbundled local switching and defined the switching element to include "line-side facilities," "trunk-side

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and regions."). Where neither of these two triggers is satisfied, we establish specific and mandatory criteria that state commissions must apply to determine whether a market *allows* self-provisioning of switching. It is difficult to see how we could provide more guidance in this analysis. Indeed, we provide considerably more guidance than we do for the states' analysis of dedicated transport, which again both the dissenters voted to approve.

[1316] As discussed more fully in our discussion above regarding local loop unbundling, no party disputes that competitors need access to incumbent LECs' loops to compete in the mass market. *See infra* Part VI.A.4.a.

facilities," and all the features, functions, and capabilities of the switch.[1317] In the *UNE Remand Order*, the Commission generally found that for the largest 50 MSAs in the country, competitors were impaired without access to switching only for serving mass market customers.[1318] Noting that commenters had not identified the characteristics that distinguish the mass market from medium and large business customers, the Commission found that a significant portion of the mass market could be identified as customers with no more than four access lines. This four-line limit would include nearly all residential users and those business users that, because they had fewer than four access lines, were more similar to residential users than they were to large businesses.[1319]

431. Although in the past the Commission's rules required incumbent LECs to provide switching unbundled from other network elements, competitors widely use unbundled local circuit switching in combination with incumbent LEC loops and shared transport.[1320] This combination has been primarily used to serve mass market customers, and within that market, depending on the state, a varying mix of residential and

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[1317] *See Local Competition Order*, 11 FCC Rcd at 15706, para. 412. The line-side facilities include the connection between a loop termination at, for example, a main distribution frame, and a switch line card. Trunk-side facilities include the connection between, for example, trunk termination at a trunk-side cross-connect panel and a trunk card.

[1318] *UNE Remand Order*, 15 FCC Rcd at 3821-22, para. 274.

[1319] *UNE Remand Order*, 15 FCC Rcd at 3829, paras. 292-93. Specifically, in density zone one of the top 50 MSAs, incumbent LECs that make the EEL combination available were not obligated to provide unbundled local circuit switching to requesting carriers for serving customers with four or more lines. *Id.* at 3822-31, paras. 276-78.

[1320] Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (filed Feb. 13, 2003) (AT&T Feb. 13, 2003 *Ex Parte* Letter).

business customers.[1321] In contrast, new entrants that do not rely on incumbent LECs for switching generally obtain UNE-L from incumbent LECs and connect these loops to their switches.[1322]

432. In the *Triennial Review NPRM*, the Commission sought comment on whether, in light of changed circumstances, it should retain these unbundling requirements and if so, whether it should modify these requirements or the existing definition for unbundled local circuit switching.[1323] The Commission also sought comment on the benefits and burdens resulting from continuing unbundled switching and whether there are any alternative, less burdensome options to achieve the goals of the Act.[1324]

[1321] The evidence in the record demonstrates that, by the end of 2002, more than ten million residential and small business lines were being served by competitive LECs using unbundled loops combined with unbundled local circuit switching. PACE Jan. 14, 2003 *Ex Parte* Letter at 2; *see also* George S. Ford, Ph.D, *UNE-Platform, Impairment and Natural Monopoly: Bell Company Estimates of Cost Disparities and Their Consequences* at 1, *in* Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 29, 2003) (Z-Tel Jan. 29, 2003 *Ex Parte* Letter). Unbundled local circuit switching usage is heavily concentrated in residential markets: approximately 70% of such lines serve residential customers. Verizon Unbundled Switching Study at 3. In contrast to the other three BOCs, Qwest claims that the majority of customers in its region that are served by unbundled loops combined with unbundled local circuit switching are business customers. *Id.* This appears, however, to be due to Qwest's offering of Centrex lines (typically used for business customers) on a unbundled basis. *See id.*

[1322] As discussed above, UNE-L describes an entry mode where a competitive LEC combines unbundled loops procured from the incumbent LEC with the competitive LEC's own switching and transport network.

[1323] *Triennial Review NPRM*, 16 FCC Rcd at 22806, para. 55.

[1324] *Id.*

3. Definition of Unbundled Local Circuit Switching Element

433. We define local circuit switching to encompass line-side and trunk-side facilities, plus the features, functions, and capabilities of the switch.[1325] The features, functions, and capabilities of the switch include the basic switching function of connecting lines to lines, lines to trunks, trunks to lines, and trunks to trunks. In addition, we conclude that the features, functions, and capabilities of the local circuit switching UNE also include the same basic capabilities that are available to the incumbent LEC's customers, such as telephone number, directory listing, dial tone, signaling, and access to 911, and, in the cases described below, operator services and directory assistance.[1326] The end office switching element includes all vertical features that the switch is capable of providing, including custom calling, CLASS features, and Centrex, as well as any technically feasible customized routing functions. Thus, when a requesting carrier purchases the unbundled local switching element, it obtains all switching features in a single element on a per-line basis. A requesting carrier will deploy individual vertical features on its customers' lines by designating, via an electronic ordering interface, features which the incumbent LEC must activate for particular customer lines.[1327]

[1325] 47 C.F.R. § 51.319(c)(1).

[1326] *See infra* Part VI.H.2. We readopt here the definitions of "operator services" and "directory assistance" set forth in the *UNE Remand Order*. *See UNE Remand Order*, 15 FCC Rcd at 3892, para. 443.

[1327] Because signaling networks are accessed via the switch, when carriers purchase switching as a UNE under the terms established in this Order, they shall continue to obtain access to the incumbent LEC's signaling networks. Moreover, because competitive carriers access call-related databases through signaling networks, in such instances where switching remains a UNE, competitive carriers purchasing the switching UNE shall have access to the call-related databases that the signaling networks permit carriers to access. *See infra* Parts VI.G, VI.H. Indeed, in

434. We disagree with SBC that, to the extent that the switch is unbundled, the Commission should not unbundle access to switch routing tables.[1328] We include access to switch routing tables as a "function" of the switch because one of the most essential functions a switch performs is to provide routing information that sends a call to the appropriate destination.[1329] Requiring requesting carriers to engage in the potentially lengthy process of compiling traffic studies and populating routing tables with data in the incumbent LEC's switch would deny a requesting carrier meaningful access to unbundled local circuit switching to serve customers. Accordingly, consistent with the Commission's finding in the *Local Competition Third Order on Reconsideration*, we find no support for SBC's assertion that the switch as a network element does not include access

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light of the technical complexity associated with making the necessary network modifications to use an incumbent's switch in combination with competitively provided signaling networks and call-related databases, it seems unlikely that incumbents would prefer a different rule. We also note that, as described above, when a requesting carrier purchases unbundled access to the incumbent LEC's switching, the incumbent LEC must also offer unbundled access to operator service and directory assistance (OS/DA) services if the incumbent LEC does not provide customized routing.

[1328] SBC Comments at 79-81 (arguing that routing tables should not be unbundled because they contain confidential information).

[1329] *See In the Matter Of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket Nos. 96-98, 95-185, Third Order on Reconsideration and Further Notice of Proposed Rulemaking, 12 FCC Rcd 12460, 12486-87, para. 45 (1997) (*Local Competition Third Reconsideration Order*) (rejecting Ameritech's arguments that the Commission should not unbundle switch routing tables).

to the functionality provided by the incumbent LEC's routing tables.[1330]

4. Impairment Analysis

a. Evidence of Switch Deployment

435. In conducting our impairment analysis, we first consider evidence of competitive LEC circuit switch deployment in the relevant customer market. As indicated above, evidence of self-deployment is the best indicator of whether competitive LECs have been able to overcome barriers to entry with respect to facilities deployment.[1331] We find that the extent of competitive LEC circuit switch deployment varies tremendously in the enterprise and mass markets. In particular, we find that the record demonstrates significant nationwide deployment of switches by competitive providers to serve the enterprise market, but extremely limited deployment of competitive LEC circuit switches to serve the mass market.[1332]

[1330] *Local Competition Third Reconsideration Order*, 12 FCC Rcd at 12487, para. 45. Because we continue to require access to routing tables to the extent we unbundle switching, we reject CompTel's argument that proprietary treatment prevents unbundling of such tables, and deny CompTel's petition for reconsideration of this conclusion. CompTel Feb. 17, 2000 Petition for Reconsideration at 17-18.

[1331] *See supra* Part V.B.1.d.

[1332] Chairman Powell offers contradictory arguments to support his opposition to unbundled switching. He first argues that there are sufficient switching alternatives already used to serve the mass market and then argues that such alternatives will not be deployed so long as unbundled switching is available. *Compare Chairman Powell Statement* at 11-12 with 13. Chairman Powell also suggests that any impairment determination for switching should be overridden by "the social and economic costs of unbundling switching" and thus there is no need even to conduct an impairment analysis. We disagree that this Commission should reach such a conclusion for the entire nation on the basis of the current record and believe an impairment analysis should be conducted. Moreover, Chairman Powell seems to focus only on the costs or benefits

436. There is no dispute in the record that competitive carriers have significantly increased their switch deployment and the number of lines they have served since 1999. Specifically, the record shows that competitive LEC switch deployment has almost doubled in two years, growing from 700 in 1999 to as much as 1,300 in 2001.[1333] In addition,

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depending on whether or not he wants to retain access to an element. For example, with respect to line sharing he ignores the impairment standard and argues that line sharing should be retained because it "has generated clear and measurable benefits for consumers." *Chairman Powell Statement* at 1. With regard to switching he appears to disregard the "clear and measurable benefit to consumers" standard and instead focuses only on the costs of unbundling.

[1333] *See, e.g.*, BOC UNE Fact Report 2002 at II-1-II-2, II-4 (citing numbers based on Jan. 2002 LERG data and a New Paradigm Resources Group (NPRG) Report based on year-end 2001 data); *Local Competition Rules Must Encourage Investment and Job Growth in the Telecommunications Industry*, *in* Letter from Debbie Goldman, Research Economist, Research and Development Department, Communications Workers of America, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Feb. 6, 2003) (CWA Feb. 6, 2003 *Ex Parte* Letter). For example, BellSouth estimates that there are 284 competitive voice switches deployed in its region. *See* Letter from Robert T. Blau, Vice President—Executive and Federal Regulatory Affairs, BellSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 02-33, Attach. at 10 (filed Jan. 24, 2003) (BellSouth Jan. 24, 2003 *Ex Parte* Letter). BellSouth estimates that, since the release of the *UNE Remand Order*, the number of competitive LEC switches in the Atlanta, Miami, and New Orleans MSAs have doubled. BellSouth Comments at 79. *But see* Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Jan. 31, 2003) (WorldCom Jan. 31, 2003 Switching *Ex Parte* Letter). WorldCom argues that the record demonstrates that the 1,300 switches cited in the BOC UNE Fact Report are overstated by at least 33% once various inaccuracies are corrected. First, WorldCom states that the BOCs' estimate of competitive LEC switches includes "hundreds of switches" that can only be used to serve customers with high-capacity connections or PBXs. *Id.* at 2. Second, WorldCom states that the record demonstrates that the BOC UNE Fact Report overstates the number of switches deployed by four competitive LECs by 105 switches, or 8%. *Id.*

more than 200 competitive LECs of all sizes have deployed local voice switches.[1334] The record also shows that vendors have produced switches (at declining prices) that are readily available for purchase.[1335] These switches are capable of serving significantly broader service areas than traditional incumbent LEC rate centers.[1336]

437. Incumbent LECs claim that the Commission should remove virtually all unbundling obligations regarding local switching on a national basis simply because competitive carriers have deployed 1,300 switches and are serving, according to the BOC UNE Fact Report 2002, over 16 million lines with those switches.[1337] This argument, however,

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at 2; Letter from Dana Frix, Counsel for Bridgecom and Metropolitan Telecommunications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Feb. 5, 2003) (Bridgecom Feb. 5, 2003 *Ex Parte* Letter). WorldCom's criticisms of the BOCs' computations, however, would also apply to the 700 competitive switches the BOCs claim existed in 1999, resulting in a lower figure. WorldCom's filing does not set forth the effects its analysis would have on a year-to-year basis. Thus, even taken at face value, that filing fails to refute the central point that competitive switching deployment has risen dramatically.

[1334] BOC UNE Fact Report 2002 at II-1. The BOC calculation of 1,300 competitive LEC local circuit switches does not include packet switches. BOC UNE Fact Report 2002 at I-1 (stating that competitive LECs have deployed approximately 1,700 packet switches). We note that the record reflects that competitive LEC deployed packet switches are not used to serve analog mass market customers. *See, e.g.*, WorldCom Jan. 31, 2003 Switching *Ex Parte* Letter at 3 ("As WorldCom and other CLECs have demonstrated, the types of circuits provisioned and the equipment used to serve business customers are quite different than those used to serve analog residential and small business customers.").

[1335] Z-Tel Reply at 45.

[1336] BOC UNE Fact Report 2002 at II-1.

[1337] BellSouth Comments at 77-90; Qwest Comments at 20-31; Verizon Comments at 94-105. Qwest would eliminate the unbundled switching requirements in areas where multiple competitive LECs have deployed their own switches. *See* Letter from Cronan O'Connell, Vice President—Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary,

ignores significant differences in the evidence concerning the enterprise market and mass market. The record is replete with evidence showing that competitive LECs are successfully using their own switches to serve large business customers that require high-capacity loops (which can be connected to competitive carrier switches with few of the obstacles that affect voice-grade loops).[1338] For example, BiznessOnline.Com cites data compiled by a coalition of competitive carriers which examined six representative markets and found that approximately 90 percent of the loops used by competitive carriers in these markets are DS1 capacity or higher loops.[1339] Specifically, according to the

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FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Feb. 13, 2003) (Qwest Feb. 13, 2003 *Ex Parte* Letter). For those LATAs where competitive LECs have deployed three or more local exchange voice switches, Qwest would have this Commission eliminate local circuit switching as a UNE. The Qwest proposal assumes that if three competitive LEC switches physically exist in a LATA, a wholesale market for local switching will develop, thereby enabling competitive LECs to refrain from deploying their own switches to serve customers.

[1338] *See, e.g.*, ATX Jan. 22, 2003 *Ex Parte* Letter at 1-2, 4 (stating that competitive carriers are deploying switches to serve high volume customer locations that require DS1 or higher loop connectivity); WorldCom Jan. 31, 2003 Switching *Ex Parte* Letter at 1; AT&T *et al.* Feb. 3, 2003 *Ex Parte* Letter at 2. Since 1999, AT&T has continued to deploy circuit switches, but uses those switches almost exclusively to provide service to large businesses. AT&T Comments at 207-09, 219; AT&T Comments, Attach. A, Declaration of Ellyce Brenner (AT&T Brenner Decl.) at paras. 24-29; *see also* Z-Tel Comments at 48-50 ("The fact that some CLECs have deployed switches to serve the large business market or broadband market does not support the conclusion that CLECs are not impaired without access to unbundled switching to serve the mass market."); CompTel Comments at 62-63.

[1339] *See* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 23 (citing CCG July 17, 2002 CLEC Survey *Ex Parte* Letter at Table 4).

BOCs, competitive LECs are, as of year-end 2001, serving at least 13 million business lines over their own switches.[1340]

438. On the other hand, the record indicates that competitive LECs have self-deployed few local circuit switches to serve the mass market.[1341] The BOCs claim that, as of year-end 2001, approximately three million residential lines were served via competitive LEC switches.[1342] Others argue that this figure is significantly inflated.[1343] Even accepting that figure, however, it represents only a small percentage of the residential voice market. It amounts to less than three percent of the 112 million residential voice lines served by reporting incumbent LECs.[1344]

439. We find, moreover, that the BOCs' competitive LEC residential line count does not accurately depict the ability of an entering competitive LEC to overcome the barriers to entry generated by the hot cut process, and to serve the mass market using incumbent LEC loops. Specifically, many of the lines cited by the incumbents are served by carriers that, for one reason or another, are able to use their own loops. We have

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[1340] BOC UNE Fact Report 2002 at II-1; Verizon Unbundled Switching Study at 3.

[1341] Letter from Marc A. Goldman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Nov. 13, 2002) (WorldCom Nov. 13, 2002 Unbundled Switching *Ex Parte* Letter).

[1342] BOC UNE Fact Report 2002 at II-1. This number may count only competitor lines in BOC-served territories, excluding the former GTE and SNET territories. BOC UNE Fact Report 2002 at II-4, Table 2.

[1343] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 24; Z-Tel Reply at 41; AT&T Pfau Reply Decl. at paras. 28-31.

[1344] Industry Analysis and Technology Division, Wireline Competition Bureau, *Statistics of Communications Common Carriers September 2002 Report* at Table 2.6. The 112 million line figure represents the number of residential access lines for incumbent LECs that are required to report residential line figures to the Commission. *Id.*

made detailed findings that competitors are impaired without access to incumbents' voice-grade local loops.[1345] Indeed, no party seriously contends that competitors should be required to self-deploy voice-grade loops.[1346] Thus, for the typical entrant, entry into the mass market will likely require access to the incumbent's loops, using the UNE-L strategy. As described below, this strategy raises operational and economic difficulties associated with accessing the loop.[1347] Indeed, as discussed above, a crucial function of the incumbent's local circuit switch is to provide a means of accessing the local loop.[1348]

440. Of the three million residential lines purportedly served by competitive switches at year-end 2001, approximately 2.2 million lines were served by cable telephony providers that bypass the incumbent LECs' networks entirely.[1349] Of the remaining access lines, Z-Tel

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[1345] *See supra* Part VI.A.4.a.(v).(a).

[1346] Nor is there any wholesale market for such loops. *See* Access Integrated Networks Reply at 13; Allegiance Reply at 32-33; Covad Comments at 35-37; WorldCom Reply at 87.

[1347] *See supra* Part VI.D.6.a.(i).

[1348] *See supra* Part VI.D.2.

[1349] Industry Analysis and Technology Division, Wireline Competition Bureau, *Local Telephone Competition: Status as of December 31, 2001* (July 2002) at Table 5 (*Local Telephone Competition July 2002 Report*). As noted above, in mid-2002, cable telephony represented 2.6 million access lines, a 39% growth over the previous year. *Id.* at Table 5. Virtually all cable subscribers are mass market customers. *See* AT&T Comments at 224 (noting that "virtually no businesses subscribe to cable"); *see also* WorldCom Comments, Attach. A at 21 ("The cable industry provides service to almost no large business customers."), 37 ("Cable systems were for the most part built to serve residential and suburban areas."), 35 ("Cable television systems do not have the capacity to serve large numbers of business customers requiring DS-1 and higher-speed services."). The BOCs' arguments confirm that cable is primarily suited for service to residential customers, rather than to

offers evidence that most are served by large, independent incumbent LECs expanding into adjacent areas and by cable overbuilders.[1350] Z-Tel then estimates that only 200,000 mass market lines are served through UNE-L.[1351] Accordingly, much of the deployment relied upon by the BOCs in fact provides no evidence that competitors have successfully self-deployed switches as a means to access the incumbents' local loops, and have overcome the difficulties inherent in the hot cut process.[1352]

441. Additionally, the BOCs' suggestion that our analysis should treat switches deployed to serve large enterprise customers exactly the same as those deployed to serve mass market customers ignores the substantial modifications, and attendant costs, necessary to serve mass market customers with an enterprise switch. For example, in order to enable a switch serving large enterprise customers to serve mass market customers, competitive LECs may need to purchase additional analog equipment, acquire additional collocation

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business customers. *See, e.g.*, BellSouth Comments at 38-41; SBC Comments at 53, 56; Verizon Comments at 12-14.

[1350] Z-Tel Reply at 43-46; *see also* WorldCom Reply at 143-44 ("Others such as TDS Telecom and ALLTEL are using their monopoly incumbent LEC base to expand into neighboring incumbent territories."). Z-Tel argues that the 1996 Act was not intended to foster local competition only by companies with the resources of cable or incumbent assets. Z-Tel Reply at 41-43. In addition, WorldCom argues that the small group of competitive LECs that have deployed switches serving the mass market, including the cable overbuilders, focus only on high-density areas and that their future expansion is in doubt. WorldCom Reply at 143-44.

[1351] Z-Tel Reply at 48-49.

[1352] We note, however, that some of this competitive deployment could be considered by states in determining whether the triggers discussed below have been satisfied in specific markets.

space, and purchase additional cabling and power.[1353] Thus, while we agree that deployment of an enterprise switch is one piece of evidence relevant to the possibility of serving mass market customers—and, indeed, our impairment analysis takes such deployment into account, as discussed below—the fact remains that competitors using their own switches are currently serving extremely few mass market customers, through enterprise switches or otherwise.[1354]

[1353] *See, e.g.*, WorldCom Nov. 18, 2002 Transition to UNE-L *Ex Parte* Letter at 7. WorldCom states that in order to modify one of its switches in Manhattan serving enterprise customers to serve the mass market, WorldCom would be required to: purchase and install analog-capable equipment; increase the existing collocation cage space by 200 square feet; and pay Verizon for additional cabling and power. *Id.*

[1354] The dissents' assertion that enterprise switches should be considered in our mass market triggers ignores these substantial differences between the switches serving the different markets. *Chairman Powell Statement* at 6; *Commissioner Abernathy Statement* at 4-5. Most importantly, as explained above, unlike mass market loops, facilities used to serve enterprise customers are typically not pre-wired to incumbent LEC switches, allowing competing carriers to avoid the costs and service disruptions associated with hot cuts. The dissents also ignore the substantial differences in the mass market and the enterprise market—such as the fact that enterprise customers generally offer increased revenue opportunities and are more willing to enter long-term contracts than are mass market customers. These differences elsewhere led them to agree to "conduct separate . . . impairment analyses based on [among other things] two relevant customer classes—the mass market and the enterprise market." *See supra* para. 197. Our loops discussion, for example, conducts an entirely separate analysis and arrives at different conclusions for loops used to serve mass market customers than it does for loops used to serve enterprise customers. *See supra* Part VI.A. While we do not make the same distinction for transport, that is only because transport is used to aggregate significant volumes of traffic, and neither the economics nor the operations significantly differ for mass market and enterprise customers. As we indicate, however, that is an exception to the practice adopted by the Commission and explicitly approved by both the dissenters. *See supra* para. 197.

442. Moreover, because no party offers evidence to show that third parties are currently offering switching on a wholesale basis—that is, selling switching capacity to third-party carriers to use in their offerings—we find that no significant third-party alternatives to unbundling local switching exist. Thus, we are unable to find that this evidence demonstrates that competitive LECs are able to economically enter the mass market without unbundled access to incumbent LEC circuit switching.

443. *Intermodal Switching Alternatives.* We determine that, although the existence of intermodal switching is a factor to consider in establishing our unbundling requirements, current evidence of deployment does not presently warrant a finding of no impairment with regard to local circuit switching.[1355] In particular, we determine that the limited use of intermodal circuit switching alternatives for the mass market is insufficient for us to make a finding of no impairment in this market, especially since these intermodal alternatives are not generally available to new competitors.[1356]

444. The Commission's *Local Competition Report* shows that only about 2.6 million homes subscribe to cable telephony on a nationwide basis,[1357] even though there are approximately 103.4 million households in the United

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[1355] We note that our analysis of intermodal switching alternatives is informed by the evidence of intermodal alternatives relating to local loops. Because commenters devoted a significant amount of discussion to cable and wireless facilities as substitutes for local loops, evidence of intermodal alternatives is also discussed under our analysis of local loop unbundling.

[1356] BOC UNE Fact Report 2002 at IV-8 to IV-14. Current estimates are that only 1.7% of U.S. households rely on other technologies to replace their traditional wireline voice service. Allegiance Reply at 35.

[1357] *Local Telephone Competition December 2002 Report* at 2. In their joint BOC UNE Fact Report 2002, the BOCs claim that 1.5 million homes subscribe to cable telephony. BOC UNE Fact Report 2002 at IV-10.

States.[1358] Moreover, the record indicates that circuit-switched cable telephony is only available to about 9.6 percent of the total households in the nation.[1359] Ultimately, because retrofitting cable infrastructure to support cable telephony requires substantial investment and modification, and because significant technical and operational issues must still be resolved for those cable operators that have not already augmented their networks to offer cable telephony (which are the majority of the cable networks currently in operation), it is difficult to predict at what point cable telephony will be deployed on a more widespread and ubiquitous basis.[1360]

445. We also find that, despite evidence demonstrating that narrowband local services are widely available through CMRS providers, wireless is not yet a suitable substitute for

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[1358] *See Telephone Subscribership November 2002 Report* at Table 1. According to Verizon, cable telephony providers already offer circuit switched telephone services to some ten million households nationwide, already serve more than two million lines, and are adding roughly 100,000 lines each month. *See* Letter from Michael E. Glover, Senior Vice President and Deputy General Counsel, Verizon, to William F. Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (dated Jan. 10, 2003) (Verizon Jan. 10, 2003 Switching *Ex Parte* Letter) *in* Letter from Ann D. Berkowitz, Project Manager—Federal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 10, 2003); *see also Unbundling Switching, UNE-P, and Hot Cuts*, SBC Presentation to FCC, *in* Letter from Brian J. Benison, Associate Director—Federal Regulatory, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 10 (filed Jan. 7, 2003) (SBC Jan. 7, 2003 *Ex Parte* Letter).

[1359] BOC UNE Fact Report 2002 at II-11, IV-10 (noting that Cox has the capability to offer cable telephony to "75 to 95 percent" of the consumers in Rhode Island).

[1360] BellSouth Comments at 38, 40 (citing *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, CS Docket No. 01-129, 8th Annual Report, FCC 01-389, at para. 34 (2001)).

local circuit switching.[1361] In particular, only about three to five percent of CMRS subscribers use their service as a replacement for primary fixed voice wireline service, which indicates that wireless switches do not yet act broadly as an intermodal replacement for traditional wireline circuit switches.[1362] Lastly, the record demonstrates that wireless CMRS connections in general do not yet equal traditional landline facilities in their quality and their ability to handle data traffic.[1363]

446. Moreover, both cable and CMRS are potential alternatives not simply for switching, but for the entire incumbent LEC telephony platform, including the local loop. We are unaware of any evidence that either technology can be used as a means of accessing the incumbents' wireline voice-grade local loops.[1364] Accordingly, neither technology provides probative evidence of an entrant's ability to access the incumbent LEC's wireline voice-grade local loop and thereby self-deploy local circuit switches. Rather,

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[1361] The Commission, however, recently relied on wireless broadband PCS substitution to support Track A findings in two section 271 proceedings where residential customers in New Mexico and Nevada had replaced their landline service with wireless service. *SBC Nevada 271 Order*, 18 FCC Rcd at 7206, para. 18; *Qwest New Mexico 271 Order*, 18 FCC Rcd at 7336 n.53; *see also BellSouth Louisiana II 271 Order*, 13 FCC Rcd at 20606, 20622-23, paras. 11, 29-30. This, however, was based on a different analysis than that required under the necessary and impair standards.

[1362] *See Seventh Wireless Report 2002* at 32 n.208; *see also* BOC UNE Fact Report 2002 at IV-12 (citing *Sixth Wireless Report 2001*, 16 FCC Rcd at 13381 n.211).

[1363] BellSouth Comments at 41 (stating that wireless is ineffective in transmitting large amounts of data at high speeds); *see also* AT&T Reply at 25, 162-63 (stating that wireless service is engineered to provide only roughly 70% call completion rate while wireline call completion rates exceed 99%).

[1364] *See infra* Part V.B.

competition from cable telephony and CMRS providers only serves as evidence of entry using *both* a self-provisioned loop *and* a self-provisioned switch.

447. *Impact of Unbundling on Switching Deployment.* Commenters have raised questions regarding the impact of unbundling on carriers' incentives to construct and deploy switching facilities.[1365] We find that the record evidence on

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[1365] The dissents also argue that triggers based on deployment will never be met for switching because the unbundling of switching itself creates such a disincentive for deployment that neither competitors nor incumbents will build new switching facilities. *Chairman Powell Statement* at 5-6; *Commissioner Abernathy Statement* at 4-5. The dissents offer no evidence whatsoever to support this conclusion. To the contrary, the Chairman himself acknowledges that, despite the current nationwide availability of unbundled switching, "a number of competitors have overcome whatever economic impediments exist and are using that switching capability to serve mass market customers." *Chairmant Powell Statement* at 7. Moreover, neither Chairman Powell nor Commissioner Abernathy explain how their disincentives argument is consistent with the conclusions they support throughout the rest of the Order that the best evidence of lack of impairment is "evidence that new entrants are providing retail services in the relevant market using non-incumbent LEC facilities." *See supra* paras. 93-94. Indeed, in both the transport and high-capacity loop sections of the Order, they have agreed to eliminate unbundling obligations only after a finding that there is sufficient deployment of alternative facilities. As both dissenters have agreed in the transport section, the probability of a disincentive effect from unbundling is addressed by establishing relatively low thresholds for the triggers. *See supra* para. 413 & note 1274. Thus, for example, the triggers for the transport network element eliminate unbundling requirements on a particular route where there are three competitive self-providers of transport or two competitive wholesale providers. These are the same thresholds that we use for eliminating unbundled switching. In addition, similar to transport and loops, even where there is no deployment and these triggers are not met, states must consider whether potential deployment is possible based on specific criteria consistent with our impairment standard.

Looking at the record on this point, we found the evidence of disincentives inconclusive at best. The incumbents' evidence purports to

show disincentives consisted of studies alleging that as lines served by unbundled loops combined with unbundled local circuit switching increases in a given state, the number of facilities based competitive LEC-owned lines decreases. However, as explained in the Order, these studies suffer from fundamental flaws that undermine their probative value. *See infra* note 1374. At the same time, there were studies purporting to show that unbundling obligations in fact encourage carriers to make capital investments in facilities. *See infra* note 1373. In the end, we found neither compelling. We found significantly more probative the evidence that in areas where competitors have their own switches for other purposes (*e.g.*, enterprise switches), they are not converting them to serve mass market customers and are instead relying on unbundled loops combined with unbundled local circuit switching. Given the fixed costs already invested in these switches, competitors have every incentive to spread the costs over a broader base. Their failure to do so bolsters our findings that significant barriers caused by hot cuts and other factors make entry uneconomic.

Chairman Powell's suggestion that the number of lines that competing carriers serve with their own switches has decreased while the number of lines served with unbundled switching has increased is simply wrong. *See Chairman Powell Statement* at 6. In fact, Commission data show that the number of customers served with self-deployed switches has consistently increased. For example, incumbent LECs provided about 3.2 million unbundled loops without switching in June 2001, about 3.7 million unbundled loops without switching in December 2001, about 4.1 million unbundled loops without switching in June 2001, and about 4.3 million unbundled loops without switching in December 2002. *See Local Telephone Competition*, Status as of December 31, 2002 (June 2003); *Local Telephone Competition*, Status as of June 30, 2002 (December 2002); *Local Telephone Competition*, Status as of December 31, 2001 (July 2002); *Local Telephone Competition*, Status as of June 30, 2001 (February 2002); *Local Telephone Competition*, Status as of December 31, 2000 (May 2001); *Local Telephone Competition*, Status as of June 30, 2000 (December 2000); *Local Telephone Competition*, Status as of December 31, 1999 (August 2000). Thus, the availability of unbundled switching does not appear to have stopped the development of facilities-based competition. While Chairman Powell is correct that, in certain states, the rate of growth in lines using unbundled switching has increased at a higher rate than has the rate of growth for lines served with competitively deployed switches, that fact falls far short of showing any significant disincentive effect from the availability of unbundled switching. More importantly, this data is fully consistent with the

this matter is inconclusive. As we have explained above, section 251(d)(2)'s "at a minimum" clause permits us to consider, when appropriate, factors that are closely tied to the

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evidence in the record that significant barriers caused by hot cuts and other factors make self deployment uneconomic. *See supra* paras. 466-470. For example, the record shows that AT&T spent over $11 billion in an effort to use its own switches with unbundled loops to serve low-volume business customers, but that this effort failed as a result of hot cut problems. *See* AT&T Comments at 218. Customer conversions took an average of 45 days from the time of sale to the establishment of dial tone. *See id.* at 219. Service outages during cutovers occurred 6 to 9% of the time. *See id.* As a result, over half of AT&T's orders were cancelled prior to actual conversion. *See id.* Chairman Powell offers no response whatsoever to this evidence or the other evidence in the record on the barriers caused by hot cuts.

Moreover, the dissents fail to consider the incentives created by our decisions on packet switching and advanced services. Specifically, we no longer unbundle packet switching and the advanced networks used with such switching. This means that to the extent there are significant disincentives caused by unbundling of circuit switching, incumbents can avoid them by deploying more advanced packet switching. This would suggest that incumbents have every incentive to deploy these more advanced networks, which is precisely the kind of facilities deployment we wish to encourage. At the same time, competitors have incentives to build comparable facilities to compete. And because we count competitive deployment of packet switches—and other intermodal facilities—in our circuit switching triggers, such deployment can lead to the elimination of unbundling requirements on circuit switches.

In the end, the dissents would simply eliminate unbundled switching and wait for competition to arise from other platforms. We have chosen to eliminate unbundling more gradually, as we do for other elements, by both attacking the causes of impairment for circuit switching and encouraging intermodal competition through the switching triggers. Unlike the approach advocated by the dissents, our approach maintains appropriate incentives without throwing away the competition that exists today.

Finally, we note that to the extent Chairman Powell and Commissioner Abernathy are concerned that the price of using unbundled switching is too attractive when compared with using self-deployed switches, this issue is more appropriately addressed in the forthcoming proceeding on TELRIC pricing.

purposes of the statute but distinct from the "necessary" and "impair" standards in reaching an unbundling determination.[1366] Above, we have exercised this authority in our analysis of FTTH and hybrid loops, where we have given weight to section 706's directive that the Commission "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans."[1367] While section 251(d)(2) permits us to consider factors other than the statutory "necessary" and "impair" standards, we are mindful of the courts' admonitions that we not extend incumbents' unbundling obligations more widely than required to fulfill the purposes of the Act. As explained above, we thus apply the "at a minimum" language with due restraint. Here, we consider investment incentives in the context of unbundled local circuit switching, but conclude that given the insufficient record evidence on this issue and the fact that the goals of section 706 are not directly implicated in the context of switching, our findings of impairment are not overcome in this context.

448. Although our consideration of investment incentives in our FTTH and hybrid loops decisions is largely driven by the Act's direction to do so contained in section 706, we believe that consideration of economic incentives, pursuant to section 251(d)(2)'s "at a minimum" language, is appropriate in the context of unbundled circuit switching because such consideration accords weight to the Act's aim of encouraging facilities-based competition. As explained above, the

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[1366] *See supra* Part V.D. Section 251(d)(2) provides that "the Commission shall consider, *at a minimum*, whether . . . the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer." 47 U.S.C. § 251(d)(2) (emphasis added).

[1367] The Commission *considers* services with upstream and downstream speeds in excess of 200 kbps to display "advanced telecommunications capability." *Third Section 706 Report 2002*, 17 FCC Rcd at 2850, para. 9.

Supreme Court in *Verizon* emphasized that the Commission has discretion to evaluate the role of investment incentives when implementing the Act's local competition provisions.[1368] We note, however, that the particular incentives primarily at issue here differ in a key respect from those at issue in the FTTH and hybrid loops discussion above. There, the primary inquiry involved the *incumbents'* incentives to develop and deploy new broadband-capable loop facilities if those facilities were subject to unbundling. Here—where the incumbents already operate ubiquitous legacy circuit switching networks—our inquiry into unbundling's impact on investment incentives focuses primarily on the *competitive LECs'* incentives to deploy alternative switching facilities. In fact, given that we do not require packet switches to be unbundled, there is little, if any, basis for an argument that our treatment of circuit switches gives LECs a disincentive to upgrade their switches.

449. The parties submit conflicting evidence regarding the relationship between unbundled local circuit switching and investment incentives. The incumbent LECs claim that unbundling obligations undermine competitive LECs' incentives to invest in local circuit switching facilities because the competitive carriers will always prefer to use the

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[1368] *Verizon*, 535 U.S. at 500; *see also id.* at 523 ("In short, the incumbents have failed to carry their burden of showing unreasonableness to defeat the deference due the Commission."). In *Verizon*, the Court recognized that it was in no position to assess the precise economic significance of the parties' opposing arguments regarding incentives created by TELRIC, and that it "ha[d] no idea whether a different forward-looking pricing scheme would have generated even greater competitive investment than the $55 billion that the entrants claim." *Id.* at 517. Thus, it merely acknowledged that the Commission had been forced to decide whether it was "better to risk keeping more potential entrants out, or to induce them to compete in less capital-intensive facilities with lessened incentives to build their own bottleneck facilities," and found that in such circumstances, "[i]t was not obviously unreasonable for the FCC to prefer the latter." *Id.* at 510.

incumbent's switching facilities, which are available to them at TELRIC rates that assume the use of the most efficient technologies available.[1369] For example, the incumbents' *UNE-P and Investment* study asserts that as unbundled local circuit switching usage increases in a given state, the number of competitive LEC-owned lines decreases.[1370] Competitive LECs deny that elimination of unbundled local switching will result in additional competitive LEC switch deployment.[1371]

[1369] Incumbents also argue that local circuit switch unbundling obligations undermine their *own* incentives to make capital investment in their own facilities because competitive LECs are free to use those same facilities, at TELRIC rates, to compete for the incumbent LECs' customers. *See, e.g.*, SBC Comments at 6.

[1370] Verizon Unbundled Switching Study. The study consisted of a univariant regression, which AT&T characterizes as a correlation study. *See also* Verizon Reply, App. 1, Harold Ware, *UNE-P Use and Facilities-Based Competition, in New York and Other States, in* Z-Tel Nov. 7, 2002 *Ex Parte* Letter. The study regresses competitive LEC facilities based access lines per 1,000 BOC access lines against competitive LEC access lines served by unbundled loops combined with unbundled local circuit switching per 1,000 BOC access lines for all states where competitive LEC access lines (unbundled loops combined with unbundled local circuit switching and full facilities) combined exceed 10% of BOC lines. Verizon Unbundled Switching Study at 3-4.

[1371] AT&T Comments at 222-23; WorldCom Reply at 153-57. WorldCom, for example, claims that it has built more switches in states where unbundled switching has been available without restriction. *See also* Letter from Lawrence R. Freedman, Counsel for WorldNet, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 (filed Jan. 6, 2003) (WorldNet Jan. 6, 2003 *Ex Parte* Letter) (stating that its business plan is largely dependent upon its ability to purchase unbundled loops combined with unbundled local circuit switching from the incumbent as a transition step). SBC challenges this claim. *See* SBC Jan. 7, 2003 *Ex Parte* Letter at 6 (stating that, in New York, AT&T and WorldCom operate 28 switches and serve over one million residential customers using unbundled incumbent LEC local circuit switching, but have not converted a single residential customer to their switches); CWA Jan. 14, 2003 *Ex Parte* Letter. We find, however, that the fact that competitors have not converted unbundled loops combined with

In support of their contentions, however, the competitive carriers advance their own studies purporting to show that unbundling obligations in fact encourage carriers to make capital investments to meet increasing competition.[1372] We find, however, that the economic studies presented by both sides of the industry suffer from several fundamental flaws that undermine their probative value.[1373] Thus, we are unable to conclude from the parties' studies that the availability of unbundled local circuit switching either depresses or stimulates infrastructure investment.

450. Section 706's directive to promote advanced telecommunications is not undermined by the unbundling of

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unbundled local circuit switching or served residential customers with existing switches only serves to demonstrate the barriers to such service. AT&T Comments at 207-08, 224-31; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 23-24; Z-Tel Comments at 34-36; WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter at 3-4. Given the sunk costs already invested in deployed switches, competitors have every incentive to spread those costs over a larger base. AT&T Comments at 211-12; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 2-3; NewSouth Reply at 29-30; Z-Tel Comments at 52-54 & n.113. Barriers caused by hot cuts and other factors simply make this uneconomic. AT&T Comments at 207-08, 212, 214-17; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 8-11; NewSouth Reply at 26-28; Z-Tel Comments at 35-36.

[1372] *See, e.g.*, AT&T Comments at 65-97; AT&T Willig Decl.; Z-Tel Oct. 7, 2002 Innovation *Ex Parte* Letter at 5; AT&T Willig Stimulating Investment at 1-7, 28-39.

[1373] The studies submitted by the incumbent LECs, such as Verizon Unbundled Switching Study, are overly simplified correlation models or state-to-state comparisons lacking adequate explanation of relevant variables. BOC Shelanski Decl. at 22; AT&T Oct. 15, 2002 *Ex Parte* Letter, Attach. C at 12, 14 (AT&T Pfau Correcting) (asserting that the study supposedly showing how the high level of unbundled loops combined with unbundled local circuit switching equates to low facilities-based competitive LEC access lines simply plots competitive LEC facilities based access lines against competitive LEC unbundled loops combined with unbundled local circuit switching lines but does not include all states).

local circuit switching because such unbundling imposes requirements with respect to the legacy telephone network, and thus does not deter carriers' investment in advanced telecommunications capabilities. Accordingly, we do not believe that section 251(d)(2)'s "at a minimum" language justifies any departure from our impairment findings in the switching context.[1374]

5. DS1 Enterprise Customers

451. We find that the record evidence establishes that there are few barriers to deploying competitive switches to serve customers in the enterprise market at the DS1 capacity and above, and thus no operational or economic impairment on a national basis.[1375] Consequently, we establish a national

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[1374] Several incumbent LECs express particular opposition to any outcome that would maintain the availability of unbundled loops combined with unbundled local circuit switching. *See, e.g.*, Verizon Comments at 6; SBC Comments at 76. This opposition appears to stem from the incumbent LECs' claim that the TELRIC rates they obtain for UNEs do not, in fact, compensate them for the costs associated with provisioning these UNEs to requesting carriers. *See, e.g.*, Verizon Comments at 32-33; SBC Comments at 34-35; BellSouth Reply at 43, 51 n.118. As explained below, however, we intend to review our TELRIC framework in a future proceeding. *See infra* Part VIII.B.2. To the extent the incumbent LECs' concerns relate not to the proper interpretation of the section 251(d)(2) standards governing access to UNEs, but rather to the section 252(d)(1) UNE pricing standards, those concerns should properly be addressed in that future proceeding rather than in this Order.

[1375] The dissents' claim that, when we voted February 20th, we intended to make only "presumptions" on impairment and that we have now significantly changed the item in making an affirmative finding. *Chairman Powell Statement* at n.42; *Commissioner Abernathy Statement* at 4. This argument completely misses the mark. In both the language we adopted February 20th and in this item, we had exactly the same intent: to make a national finding based on the record evidence but to allow the states to rebut that finding based on a more granular inquiry. In this manner, we intended to treat switching exactly as Chairman Powell proposed and the Commission unanimously voted to treat transport and loops. We previously characterized this approach as a "presumption"

finding that competitors are not impaired with respect to DS1 enterprise customers that are served using loops at the DS1 capacity and above.[1376] DS1 enterprise customers are characterized by relatively intense, often data-centric, demand

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because Chairman Powell's proposed draft of the item used the "presumption" terminology in the transport and loops sections to convey that a finding of impairment (or non-impairment) is subject to a more a granular review by the states. The presumption language in the loops and transport sections was subsequently changed, and, accordingly, we changed the switching language to be consistent. In no sense did we intend to change our approach. The claim that we "made no findings at all" is simply false. Although we used the "presumption" terminology in accord with Chairman Powell's proposed language for transport and loops, we were explicit that our switching determination was based on findings of fact—*i.e.*, the impairments associated with cutting over large volumes of loops, the NRCs associated with cutting over those loops, and the churn rates. Despite any confusion, throughout this process we have consistently endeavored to create a document that reflects the majority's views. Today's item is fully consistent with the positions taken in the negotiations leading to the vote, the vote on February 20th, and the majority's views today.

[1376] For purposes of determining whether impairment exists according to our standard, we define DS1 enterprise customers as those customers for which it is economically feasible for a competing carrier to provide voice service with its own switch using a DS1 or above loop. We determine that this includes all customers that are served by the competing carrier using a DS1 or above loop, and all customers meeting the DS0 cutoff described below in paragraph 497. As discussed below, however, we determine that the state commissions are best situated to identify *potential* enterprise customers, *i.e.*, those customers for whom it could be economically feasible to serve using a DS1 or above loop. *See infra* para. 497. Because of the expected difficulties and detailed information needed in conducting this inquiry, we allow the states nine months to make this identification, which would include determining the maximum number of lines that a carrier may obtain from a particular customer before that customer is classified as a enterprise customer. We expect such analysis to be conducted at the same time as the analysis of the mass market. State commissions have discretion to define the relevant markets for purposes of this inquiry, provided they follow the guidelines described here and below. *See infra* Part VI.D.6.a.(ii)(b)(i) (discussing the market definition to be used by states).

for telecommunications services sufficient to justify service via high-capacity loops at the DS1 capacity and above. The evidence in the record demonstrates that it becomes viable to aggregate loops at a customer location and provide service at a DS1 capacity interface or higher.[1377] Specifically, if a customer has purchased services from the competitive carrier that require a DS1 or above loop, it is economically feasible to digitize the traffic and aggregate the customer's voice loops at the customer's premises and put them onto a high-capacity circuit.[1378] This obviates the need for hot cuts at the incumbent LEC's central office,[1379] which, as discussed above, is a significant source of impairment. Specifically, the conversion process for enterprise customers generally involves the initiation of service to the competitor's new digital loop while the incumbent's service remains in place.[1380] During migration of an enterprise customer from analog services to a new digital loop, the enterprise customers remain on the incumbent's analog facilities while the new digital loop is installed and service initiated.[1381] Similarly, where enterprise customers are being converted from the digital facilities, the competing carrier installs and initiates service on a new digital loop in parallel with the customer's existing service.[1382] In each case, the incumbent's service is disconnected only after the competitor's service over a new loop has been initiated.[1383] Thus, enterprise customers avoid potentially lengthy disruption of service due to physical hot

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1377 Z-Tel Comments at 52.

1378 BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 14.

1379 *See* NewSouth Reply at 27-28; NewSouth Fury Reply Aff. at para. 6.

1380 NewSouth Fury Reply Aff. at paras. 6, 14.

1381 *Id.* at para. 14.

1382 *Id.* at paras. 18-19.

1383 *Id.* at para. 19.

cuts, occasionally experiencing an outage of only 10 to 30 seconds for incoming calls as their numbers are updated in the industry databases used to route calls.[1384] As a result, competitive carriers neither incur the costs of hot cuts nor experience the quality degradation associated with the cut over process to serve customers with loops with DS1 capacity and above.[1385] Accordingly, competitive LECs generally face the same opportunities and challenges as incumbents on connecting such facilities to their switches.

452. In addition, the revenue opportunities associated with serving DS1 enterprise customers generally are sufficient to justify the sunk and fixed costs associated with using and installing the switch.[1386] DS1 enterprise customers are typically medium or large business customers with high demand for a variety of sophisticated telecommunications services that use loops with DS1 capacity and above. DS1 enterprise customers purchase extensive local services, resulting in significant revenues to the service provider, allowing a greater opportunity for the competitive LEC to recover any non-recurring costs associated with the "set-up" of the loop and switch facilities necessary to provide services.[1387] DS1 enterprise customers are more receptive to entering into long-term contracts, which likewise gives competing carriers a greater ability to recover non-recurring costs. Moreover, because large business customers generate comparably greater revenues than residential customers,

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[1384] *Id.* at paras. 15-17.

[1385] NewSouth Fury Reply Aff. at para. 6; Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Jan. 17, 2003) (AT&T Jan. 17, 2003 *Ex Parte* Letter); BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 14.

[1386] NewSouth Reply at 29-30; NewSouth Fury Reply Aff. at paras. 5-6.

[1387] NewSouth Reply at 30; NewSouth Fury Reply Aff. at para. 6.

requesting carriers are more willing to tolerate any provisioning difficulties that may be present in the installation process.

453. The record demonstrates that competitive LECs are competing successfully in the provision of switched services, using a collocation network with associated backhaul transport, to medium and large enterprise customers without unbundled local circuit switching.[1388] The characteristics of the enterprise market support use of self-provisioned switching in combination with unbundled loops (or loop facilities) without the imposition of substantial barriers upon the competitive LEC. The record indicates that competitive LECs are serving at least 13 million business lines through self-deployed switches, approximately 89 percent of all UNE-L lines served by competitive switches.[1389] Accordingly, while the enterprise market characteristics do not eliminate all of the cost and operational disadvantages that competitive carriers may face when using their own switches to serve enterprise customers, we find that evidence in the record shows that, unlike for the mass market, the elimination of cut over cost differentials and other operational issues supports a national finding of no impairment.[1390] That is, the record

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[1388] Allegiance, for example, serves several enterprise customers using its own switches. Verizon Reply at 103 (citing Allegiance SEC Form 10-K for the period ending December 31, 2001). In addition, Conversent Communications also "provides local and long distance voice and data service to small and medium sized business customers in second and third tier urban and suburban markets" using its own switch. Conversent Comments at 1-2.

[1389] BOC UNE Fact Report 2002 at II-1; Verizon Unbundled Switching Study at 3.

[1390] *See, e.g.*, Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2-3 (filed Oct. 10, 2002) (Z-Tel Oct. 10, 2002 *Ex Parte* Letter) (stating that large businesses with intensive bandwidth needs are a

indicates that denial of access to unbundled switching would not impair a competitor's ability to serve the enterprise markets, including all customers which are served by the competitor over loops of DS1 capacity and above.[1391]

454. Although the record shows no impairment on a national basis, we recognize that a geographically specific analysis could possibly demonstrate that competitive carriers are impaired without access to unbundled incumbent LEC local circuit switching for DS1 enterprise customers in a particular market.[1392] As discussed above, while the record shows that cut over cost differentials are eliminated and other operational challenges may be mitigated when competitive carriers use their own switches to serve enterprise customers, the characteristics of enterprise markets do not eliminate all of the cost and operational disadvantages. For example, in a local market with low retail rates, it is possible that difficulties in obtaining collocation space, costs accompanying collocation, high UNE rates for local loops, and backhaul costs could make it uneconomic for competitive LECs to self-deploy switches specifically to serve the enterprise market. In particular, the record suggests that such factors make impairment more likely in rural areas.[1393]

455. While the record in this proceeding does not contain evidence identifying any particular markets where competitive carriers would be impaired without unbundled access to local circuit switching to serve enterprise customers,

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different market than the mass market—they will agree to enter into long-term contracts and can tolerate some degree of manual installation).

[1391] *See* Verizon Reply at 103 (citing Allegiance Telecom, Inc. SEC Form 10-K for year ending December 31, 2001, at 30, 34).

[1392] We also note that these costs may only be considered a barrier to entry if they are sufficient to prevent economic entry, and thus they would not be considered "the kinds of costs any new entrant would bear."

[1393] *See, e.g.*, UNE-P Coalition Comments at 51; PACE Dec. 12, 2002 *Ex Parte* Letter.

state commissions are uniquely positioned to evaluate local market conditions and determine whether DS1 enterprise customers should be granted access to unbundled incumbent LEC circuit switching.[1394] To that end, we permit state commissions to rebut the national finding of no impairment by undertaking a more granular analysis utilizing the economic and operational criteria contained herein. State commissions will have 90 days from the effective date of this Order to petition the Commission to waive the finding of no impairment.[1395] State commissions wishing to do so must make an affirmative finding of impairment showing that carriers providing service at the DS1 capacity and above should be entitled to unbundled access to local circuit switching in a particular market.[1396] State commissions have

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[1394] Moreover, where we have found no impairment, states may alter that determination only by petitioning this Commission. It is solely where we have found impairment that states may alter the finding without petitioning us first. This further undercuts the dissents' claims that the role we provide for the states is biased in favor of finding impairment.

[1395] Chairman Powell complains that the majority "fails to reach a conclusive finding of no-impairment in competitive business markets." *Chairman Powell Statement* at 14. In fact, we have made a nationwide finding that switching for enterprise customers should not be unbundled, which states can displace only by filing a petition for waiver with this Commission based on explicitly enumerated factors. Chairman Powell's assertion that we should not allow waivers of our determination is difficult to fathom. The Commission's governing rules state that "Any provision of the rules may be waived by the Commission on its own motion or on petition if good cause therefore is shown." 47 C.F.R. § 1.3. Moreover, in sections of the Order proposed by Chairman Powell and adopted unanimously, we explicitly note that our unbundling determinations for transport and high-cap loops can be displaced by states through filing of a waiver with this Commission.

[1396] In voting on February 20th, we noted that the manner in which state commissions could rebut our national finding of impairment for enterprise switches was subject to further analysis regarding the viability of that approach. After completing this further analysis and reviewing concerns raised by the dissents that had not been previously discussed, we

decided that allowing state commissions to rebut the national findings through a waiver petition to this Commission was the best way to effectuate its overall intent in the item and provide effective oversight. As the Commission has concluded in other contexts, "[s]ome of those concerns were well thought-out and prompted the majority to rethink its position and further explain its rationale. Those steps improved this Order—and in turn resulted in a higher quality product for the American people. At the end of the day that should be the goal of all the Commissioners." *Joint Statement of Chairman Powell and Commissioner Abernathy on Northpoint*, 17 FCC Rcd at 9807. The waiver process we adopted improved this Order and also responds to some of the dissenters' concerns about oversight. While ideally we would engage in the dialogue at an earlier stage, "continuous improvement of our items is the right thing to do." *See Joint Statement of Chairman Powell and Commissioner Abernathy on Northpoint*, 17 FCC Rcd at 9807. The Commission routinely clarifies its intent and strengthens its orders through "post-adoption edits" before an item's release. *See Joint Statement of Chairman Powell and Commissioner Abernathy on Northpoint*, 17 FCC Rcd at 9807 n.705 ("There is nothing procedurally inappropriate in making changes, substantive or non-substantive, after adoption to further elucidate the rationale for the Commission's decision. Such revisions are permissible when all non-dissenting Commissioners concur in the changes. Here, all of the Commissioners who supported the relevant sections agreed to the post-adoption edits."); Statement of Chairman William E. Kennard, *1998 Biennial Regulatory Review—Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, MM Docket No. 98-35, Biennial Review Report, 15 FCC Rcd 11058, 11126 n.6 (2000) ("Contrary to the suggestion of dissenting Commissioners, there is nothing procedurally inappropriate in making revisions, substantive or non-substantive, to the biennial review report after adoption in order to further elucidate the rationale for the decision to retain the national ownership rule. Such revisions are permissible when all non-dissenting Commissioners concur in the revisions. Here, all the Commissioners who supported the relevant sections agreed to the post-adoption edits. Post-adoption edits are not uncommon."); Separate Statement of Commissioner Kevin J. Martin, *2002 Biennial Regulatory Review—Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, Report and Order and Notice of Proposed Rulemaking, MB Docket Nos. 02-277, 03-130, MM Docket Nos. 01-235, 01-317, 00-244, at 2-3 n.1 (rel. July 2, 2003) (enumerating some of the substantive post-adoption edits to that item). Indeed,

discretion to define the relevant markets for purposes of this inquiry, provided they follow the guidelines described here and below.[1397] After the 90-day period, states may wish, pursuant to state-determined procedures, to revisit whether competitive LECs are impaired without access to unbundled local circuit switching to serve enterprise customers due to changes in the specified operational and economic criteria.[1398]

456. *Operational Criteria.* In order to rebut the Commission's finding of no impairment as it relates to operational barriers, the states must examine whether operational factors are impairing competitors, according to our impairment standard discussed above.[1399] In particular, state commissions must consider whether incumbent LEC performance in provisioning loops, difficulties in obtaining collocation space due to lack of space or delays in provisioning by the incumbent LEC, or difficulties in obtaining cross-connects[1400] in an incumbent's wire center, are making entry uneconomic for competitive LECs. We believe,

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elsewhere in this item, after initially requiring that incumbent LECs seek state approval before retiring copper loops, the Chairman proposed, and the majority agreed, to remove this approval requirement. Here in this item, all of the Commissioners who support the relevant section agree to the post-adoption edits, as each has signed the Commission form designated for precisely that purpose.

[1397] *See infra* Part VI.D.6.a.(ii)(b)(i) (discussing the market definition to be used by the states).

[1398] Any subsequent review to rebut the Commission's finding remains subject to the petition process discussed in this paragraph above. The proceedings described in this paragraph shall be completed within six months of the filing of a petition or other pleading submitted in accordance with the prescribed state procedures.

[1399] *See supra* Part V.B.1 (discussing our impairment standard).

[1400] A cross-connect is defined as "[a] connection scheme between cabling runs, subsystems, and equipment using patch cords or jumpers that attach to connecting hardware on each end." NEWTON'S TELECOM DICTIONARY at 191 (18th ed. 2002).

based on the large record in this proceeding, that these factors can raise barriers to entry.[1401] We lack, however, sufficient specific evidence concerning whether and where they will be significant enough to constitute impairment. We therefore ask state commissions to consider evidence, which could include performance metrics and standards for BOCs or other types of evidence for non-BOC incumbent LECs, of whether these factors are impairing entrants in the enterprise market, and whether unbundling will overcome this impairment.

457. *Economic Criteria.* To rebut the Commission's finding that competitive LECs are not impaired by the lack of access to unbundled local circuit switching, the states must find that entry into a particular market is uneconomic in the absence of unbundled local circuit switching. To make this determination, states must weigh competitive LECs' potential revenues from serving enterprise customers in a particular geographic market against the cost of entry into that market. In evaluating competitive LECs' potential revenues, the states should consider all likely revenues to be gained from entering the enterprise market (not necessarily any carrier's individual business plan), including revenues derived from local exchange and data services. The states should also consider the prices entrants are likely to be able to charge, after considering the prevailing retail rates the incumbents charge to the different classes of customers in the different parts of the state. In determining the cost of entry into a particular geographic market, the states should consider the costs imposed by both operational and economic barriers to entry.

458. The states must consider all relevant factors in determining whether entry is uneconomic in the absence of unbundled access to local circuit switching. For example, even in a market where retail rates would give competitive carriers the opportunity to earn considerable revenues, entry may nonetheless be uneconomic. For example, the potential

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[1401] *See infra* Part VI.D.5.

revenues could be outweighed by a combination of even higher economic and operational costs, such as untimely and unreliable provisioning of loops, transport, or collocation by the incumbent LEC at high non-recurring charges, and significant costs to purchase equipment and backhaul the local traffic to the competitor's switch. However, where competitive LECs have the opportunity to earn revenues that outweigh the costs associated with entry, carriers are not impaired without unbundled access to local circuit switching for DS1 enterprise customers.

6. Mass Market Customers

459. The record demonstrates that customers for mass market services are different from customers in the enterprise market.[1402] The mass market for local services consists primarily of consumers of analog "plain old telephone service" or "POTS" that purchase only a limited number of POTS lines and can only economically be served via analog DS0 loops.[1403] We find on a national basis, that competing carriers are impaired without access to unbundled local circuit switching for mass market customers.[1404] This finding is

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[1402] Mass market customers are residential and very small business customers—customers that do not, unlike larger businesses, require high-bandwidth connectivity at DS1 capacity and above. Z-Tel Comments at 30-31. Mass market customers' accounts tend to be smaller, lower revenue accounts and are often serviced on a month-to-month basis and not pursuant to annual contracts. The record shows that consumers of DS1 capacity and above telecommunications are more willing to sign annual or term commitments. *Id.* at 32.

[1403] Z-Tel Comments at 30.

[1404] As mentioned, the dissenters are simply wrong in claiming that, when we voted on February 20th, we intended to make only "presumptions" on impairment and that we have now significantly changed the item. *See supra* note 1375. In both the language we adopted February 20th and in this item, we had exactly the same intent: to make a national finding based on a more granular inquiry. In this manner, we intended to treat switching the exactly as Chairman Powell proposed and

based on evidence in our record regarding the economic and operational barriers caused by the cut over process.[1405] These

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the Commission unanimously voted to treat transport and loops. We previously characterized this approach as a "presumption" because Chairman Powell's proposed draft of the item used the "presumption" terminology in the transport and loops sections to convey that a finding impairment (or nonimpairment) is subject to a more granular review by the states. The presumption language in the loops and transport sections was subsequently changed, and, accordingly, we changed the switching language to be consistent. As we explained, *see supra* note 1375, in no sense did we intend to change our approach.

[1405] Chairman Powell claims that "[t]he Majority finds impairment based solely on the basis of operational impairment" but, he asserts, "it empowers the states to find economic impairment (even after curing the operational concern) based on a laundry list of possible economic disadvantages." *Chairman Powell Statement* at 7. The Chairman misrepresents our analysis. To begin with, we base our impairment finding on "*economic* and operational barriers." *See supra* paras. 459-475. Among other things, for example, we find that high non-recurring per-line charges for connecting a carrier's own switch to an unbundled loop in combination with customer churn may make entry uneconomic. *Id.* Moreover, Chairman Powell's suggestion that we allow states to find impairment on the basis of factors that we did not consider is simply wrong, as we did consider and address all of these factors. We found that "the record evidence indicates that these factors may give rise to impairment in a given market, even setting aside the problems associated with hot cuts." *See supra* para. 476. We did not base our national impairment finding on these factors because "[t]he evidence in the record is not sufficiently detailed to conclude that impairment exists on a national basis due to these factors, as they vary on a geographic basis." *See supra* para. 476 note 1472. It is for that reason that we have asked the states to investigate them. Finally, Chairman Powell's intimation that we have tilted the scales in favor of finding impairment by listing what he considers to be a "laundry list" of factors fundamentally misunderstands the impairment inquiry. *Chairman Powell Statement* at 7. Chairman Powell and the rest of the Commission have all agreed that actual deployment is the best evidence of impairment. The factors that Chairman Powell criticizes here come into play only if our deployment triggers are not met. As such, the factors' purpose is to determine whether the lack of deployment is due to actual impairment or some other reason by inquiring whether entry is in fact uneconomic. In making this determination,

barriers include the associated non-recurring costs, the potential for disruption of service to the customer, and our conclusion, as demonstrated by our record, that incumbent LECs appear unable to handle the necessary volume of migrations to support competitive switching in the absence of unbundled switching. These hot cut barriers not only make it uneconomic for competitive LECs to self-deploy switches specifically to serve the mass market, but also hinder competitive carriers' ability to serve mass market customers using switches self-deployed to serve enterprise customers.

460. In this section, we ask state commissions to take specific actions designed to alleviate impairment in markets over which they exercise jurisdiction. Because we find that operational and economic factors associated with the current hot cut process used to transfer a loop from one carrier's switch to another's serve as barriers to competitive entry in the absence of unbundled switching, state commissions must, within nine months from the effective date of this Order, approve and implement a batch cut process that will render the hot cut process more efficient and reduce per-line hot cut costs. In the alternative, if appropriate for any particular geographic market, state commissions must issue detailed findings supporting a conclusion that current hot cut processes do not give rise to impairment in a market and that a batch cut process is therefore unnecessary.

461. We also recognize that a more granular analysis may reveal that a particular market is not subject to impairment in the absence of unbundled local circuit switching. We therefore set forth two triggers that state commissions must apply in determining whether requesting carriers are impaired in a given market. Our triggers are based on our conclusion

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Chairman Powell has acknowledged that one must consider all "costs of entry" as well as all potential revenues. *See supra* para. 84. Just as in our analysis of high-capacity loops and transport, which Chairman Powell proposed and the Commission adopted unanimously, this inquiry requires consideration of a number of different factors.

that actual deployment is the best indicator of whether there is impairment, and accordingly evidence of actual deployment is given substantial weight in our impairment analysis. Thus, we determine that states should examine these triggers first in their analyses.

462. *Framework of Analysis.* The analysis we prescribe with regard to mass market switching is as follows. First, where a state determines that there are three or more carriers, unaffiliated with either the incumbent LEC or each other, that are serving mass market customers in a particular market using self-provisioned switches, the state must find "no impairment" in that market. As described below, we recognize that there may be some markets where three or more carriers are serving mass market customers with self-provisioned switches, but where some significant barrier to entry exists such that additional carriers with self-provisioned switches are foreclosed from serving mass market customers. For example, if there is no collocation space available for additional competitive LEC equipment, further competitive entry may be impossible, irrespective of other economic or operational circumstances. Where the self-provisioning trigger has been satisfied and the state commission identifies an exceptional barrier to entry that prevents further entry, the state commission may petition the Commission for a waiver of the application of the trigger, to last until the impairment to deployment identified by the state no longer exists.

463. Second, a state must find no impairment when it determines that there are two or more competitive wholesale suppliers of unbundled local circuit switching, unaffiliated with the incumbent or each other. Where neither of these two triggers is satisfied, we establish a framework that state commissions must apply to determine whether a market *allows* self-provisioning of switching, notwithstanding the absence of three actual independent self-provisioning carriers. In conducting this inquiry, states must consider evidence of actual competitive deployment of local circuit switches,

operational barriers to competitive entry, and economic barriers to competitive entry. Where these factors suggest the feasibility of self-provisioning of switching, states may render a "no impairment" finding for the market at issue. In the event a state does not reach such a finding and the triggers are not met for a particular market, we direct states to consider whether, in a given market, requesting carrier's impairment without access to local circuit switching would be cured by a more limited unbundling rule—specifically, "rolling" access to unbundled local circuit switching for a period of 90 days or more. Where such "rolling" access would cure all relevant sources of impairment—for example, by allowing competitive LECs to aggregate customers in preparation for a batch cut over and to avoid certain non-recurring costs associated with end users who might discontinue service during the first few months after becoming customers of the competitive LEC—we direct states to implement such rolling access to unbundled local circuit switching instead of a broader unbundling rule. Finally, we ask the state commissions to conduct continuing reviews of impairment for unbundled switching.

a. Impairment Caused by Incumbent LEC Hot Cut Process

464. Unlike the incumbent LECs, competitive LECs do not own entire exchanges in which the customers' loops are already connected to their switches through a pre-wired connection. Instead, switch-based competitive LECs must gain access to those customers' loop facilities, which predominately, if not exclusively, are provided by the incumbent LEC.[1406] Specifically, in order to use its own

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[1406] Competitors use unbundled dedicated transport to provide the loop extensions that they need to connect their customers with their switches. In contrast, an incumbent LEC can connect its copper loop directly to its switch by merely running a jumper wire across its main distribution frame in the central office. *See generally* AT&T Oct. 4, 2002 *Ex Parte* Letter.

switch to provide end-user services, the competitor must connect its switch to the incumbent loop (*i.e.*, "last-mile connectivity"). To interconnect with an incumbent LEC or to access an incumbent LEC's UNEs, competitors must be able to directly access the incumbent's facilities with their own equipment. The most practical and efficient places in an incumbent's network where this direct access can occur are those centralized points where individual, subscriber-generated telecommunications traffic is aggregated onto common links for transmitting the traffic through the network or onto other networks. Collocation allows competitors to place their own equipment directly into these centralized points in the incumbent's network.[1407] Competitive LECs must collocate facilities at the incumbent LEC's central offices, and then build additional transport facilities to extend those loops to competitive LEC switches, and route all of their customers' traffic to their own switches.[1408]

465. The physical transfer of a customer's line from the incumbent LEC switch to the competitive LEC switch currently requires a coordinated loop cut over or "hot cut" for each customer's line.[1409] The record shows that hot cut

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[1407] AT&T Comments at 211-12; NewSouth Comments at 40-45; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 3-4.

[1408] AT&T Reply at 310.

[1409] As discussed above, a hot cut is a largely manual process requiring incumbent LEC technicians to manually disconnect the customer's loop, which was hardwired to the incumbent LEC switch, and physically re-wire it to the competitive LEC switch, while simultaneously reassigning (*i.e.*, porting) the customer's original telephone number from the incumbent LEC switch to the competitive LEC switch. *See generally* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 7. From the time the technician disconnects the subscribers loop until the competitor re-establishes service, the subscriber is without service. Simultaneously, incumbent LEC and competitor technicians must coordinate to ensure that the subscriber's telephone number is "ported" to the competitor's switch so that inbound calls are properly routed to the requesting carrier's switch. This process necessarily disconnects service to the customer for a brief

capacity is limited by several factors, such as the labor intensiveness of the process, including substantial incumbent LEC and competitive resources devoted to coordination of the process, the need for highly trained workers to perform the hot cuts, and the practical limitations on how many hot cuts the incumbent LECs can perform without interference or disruption.[1410] Regardless of whether a customer was previously being served by the competitive LEC using unbundled local circuit switching, or by the incumbent itself, a hot cut must be performed. The record contains evidence that hot cuts frequently lead to provisioning delays and service outages, and are often priced at rates that prohibit facilities-based competition for the mass market.[1411] The barriers associated with the manual hot cut process are directly associated with incumbent LECs' historical local monopoly, and thus go beyond the burdens universally associated with competitive entry.[1412] Specifically, the incumbent LECs' networks were designed for use in a single

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period of time, as the physical connection between the loop and the incumbent LEC switch is broken and then a new connection with the competitive LEC switch is made. The process of number porting also potentially subjects the customer to some period of time where incoming calls will not be received (*i.e.*, until the number porting process is correctly completed, the customer's number will not correctly route incoming calls to the competitive LEC switch now serving that customer). Some parties contend that hot cuts are practically infeasible in an increasing number of cases that leave requesting carriers with no workable means of obtaining access to unbundled loops. GCI Comments at 8-9, 16. GCI states that where the incumbent LEC has deployed IDLC architecture, it "simply cannot obtain access to the unbundled UNE loop in order to interconnect and direct that traffic to its collocation space." *Id.* at 9.

[1410] Z-Tel Comments at 38.

[1411] AT&T Comments at 212, 214-17; New York Department Comments at 2-4; BTI Comments at 11; UNE-P Coalition Comments at 49-50; WorldCom Comments at 86-87; Z-Tel Comments at 38-47.

[1412] AT&T Reply at 311; *see also* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 4, 7-8, 10-11.

carrier, non-competitive environment and, as a result, the incumbent LEC connection between most voice-grade loops and the incumbent LEC switch consists of a pair of wires that is generally only a few feet long and hardwired to the incumbent LEC switch.[1413] Accordingly, for the incumbent, connecting or disconnecting a customer is generally merely a matter of a software change.[1414] In contrast, a competitive carrier must overcome the economic and operational barriers associated with manual hot cuts.[1415] Our finding concerning operational and economic barriers associated with loop access reflects these significant differences between how the incumbent LEC provides service and how competitive LECs provide service using their own or third-party switches.

466. Competitive carriers contend that the current hot cut process prevents an orderly and seamless migration, at least with respect to mass market customers.[1416] Requesting carriers must wait for coordinated cut overs before providing service with their own switch, delay that prevents the competitive LEC from providing service in a way that mass market customers have come to expect. Service disruptions also will influence customer perceptions of competitive LECs' ability to provide quality service, and thus affect competitive LECs' ability to attract customers. Competitive LECs, like ATX, provide ample testimony in the record reporting on their efforts to serve mass market locations using the hot cut process, claiming that they were forced to cease marketing and discontinue plans to provide switch-based services to mass market customers because they experienced difficulties with service implementation associated with the hot cut process to connect voice-grade loops to their

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1413 *See* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 7.

1414 *See id.*

1415 *See id.*

1416 Bridgecom Feb. 5, 2003 *Ex Parte* Letter at 9.

switches.[1417] Similarly, AT&T contends that it lost over one-half of its UNE-L customers before the customers were even cut over due to the impact the hot cut process had on customers.[1418] AT&T also states that it experienced so many problems with coordinated hot cuts used to connect loops to its switches that it "was forced to stop marketing its switch-based service to all customer locations that did not have enough traffic to warrant the use of a DS-1 or higher capacity loop."[1419]

467. Most importantly, mass market customers generally demand reliable, easy-to-operate service and trouble-free installation.[1420] WorldCom asserts that, before the competitive LEC has established an ongoing business relationship with its new customer, the customer is unlikely to tolerate any disruption of service caused by a manual hot cut—no matter how minor—during customer acquisition.[1421] Moreover, competition is meant to benefit consumers, and not create obstacles for them. The record shows that customers

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[1417] *See* ATX Jan. 22, 2003 *Ex Parte* Letter at 3-5 (stating that the problems with hot cuts were so bad that it had to create special processes to handle hot cuts on a "special project basis" with Ameritech).

[1418] AT&T Comments at 214-17, 219; AT&T Brenner Decl. at paras. 34-42.

[1419] AT&T Comments at 207; *see also* UNE-P Coalition Comments at 47-48; Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Dec. 16, 2002) (Z-Tel Dec. 16, 2002 *Ex Parte* Letter); Letter from Robert A. Curtis, President, and Thomas M. Koutsky, Vice President—Law and Public Policy, Z-Tel, to Michael K. Powell *et al.*, FCC, *in* Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Feb. 6, 2003) (Z-Tel Feb. 6, 2003 Powell *Ex Parte* Letter) (noting generally that manual hot cuts are inadequate to handle the scale, quality, and efficiency needed if switching were eliminated).

[1420] WorldCom Reply at 141; Z-Tel Comments at 32-33.

[1421] WorldCom Reply at 141.

experiencing service disruptions generally blame their provider, even if the problem is caused by the incumbent.[1422] Indeed, Z-Tel states that one glitch or delay in the cut over process for a mass market customer may be enough to convince the customer to go back to the incumbent.[1423] In contrast, when a competitive LEC provisions a higher capacity service, such as DS1 capacity and above, to an enterprise customer, there generally is no "hot cut" of the customer.[1424] In addition, enterprise customers are often more willing to pay for redundancy to protect against disruption in the cut over process. Accordingly, we find the evidence in the record persuasive that the hot cut problem would be particularly great for transferring existing mass market customers in a cost-effective and operationally seamless manner.

468. Competitive carriers also argue that the manual hot cut process is not suitable for mass market customers because the incumbents cannot handle the necessary volume of transactions to support competitive switching in the absence of unbundled local circuit switching and that the non-recurring costs associated with hot cuts are prohibitively expensive.[1425] In deciding whether competitors are impaired

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[1422] AT&T Comments at 19-20; Z-Tel Comments at 47; Navigator Comments at 4.

[1423] Z-Tel Comments at 32, 36, 47.

[1424] *See* NewSouth Reply at 27-28; NewSouth Fury Reply Aff. at para. 6.

[1425] *See* Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 3 (filed Dec. 5, 2002) (WorldCom Dec. 5, 2002 *Ex Parte* Letter); Letter from Donna Sorgi, Vice President, Federal Advocacy, WorldCom, to William F. Maher, Chief, Wireline Competition Bureau, FCC, at 5, *in* Letter from Gil M. Strobel, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 8, 2003) (WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter) (stating that the hot cut process permits a few thousand

by incumbent LEC provisioning processes, we must necessarily make a predictive judgment concerning this systemic capability to handle anticipated future hot cut volumes, which (absent access to unbundled local circuit switching) would be greater than volumes that have been experienced in the past.[1426] Competitive carriers have shown that, although they have used hot cuts to serve certain small segments of the market, no competitive carrier relies on hot cuts to offer service to significant numbers of customers served by voice-grade loops. Having reviewed the record evidence, we find that it is unlikely that incumbent LECs will be able to provision hot cuts in sufficient volumes absent unbundled local circuit switching in all markets. For instance, AT&T has presented evidence in the record that, despite years of effort to serve low-volume business locations with a UNE-L strategy that relied on hot cuts, hot cuts could not be provided in the volumes required to support AT&T's customer demand, leading to cancellation of orders for AT&T's competitive service offering.[1427] GCI, a carrier operating in Alaska, attempted to rely in part on hot cuts to provide service to the mass market, but it claimed that it had "continual problems with provisioning unbundled loops, especially for small business loops which require a hot cut."[1428] GCI states that its business plan required the

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transactions per month, not the million needed to bring competition to the mass market); Letter from Ruth E. Holder, Legal Specialist for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Feb. 12, 2003) (WorldCom Feb. 12, 2003 *Ex Parte* Letter) (showing hot cut NRCs and how they vary across the country).

[1426] Market data confirm that, by the end of 2002, competing carriers served an estimated ten million residential and small business lines via unbundled loops combined with unbundled local circuit switching. PACE Jan. 14, 2003 *Ex Parte* Letter at 2.

[1427] AT&T Comments at 219-20; AT&T Brenner Decl. paras. 39-42.

[1428] GCI Comments at 8.

incumbent LEC to perform approximately 500 hot cuts per day, but that the incumbent LEC at its peak has averaged only approximately 100 per day.[1429] McLeod states that in the former Ameritech region, SBC has performed at most 35 hot cuts per central office per day.[1430] Moreover, the evidence in the record shows that some incumbent LECs expressly limit the number of lines that can be cut over in a given day.[1431] Specifically, Broadview states that Verizon limits the number of lines that can be cut over in a given day to 125 for the entire region.[1432]

[1429] *Id.* These problems so adversely affected its business plans that GCI determined that it would "pa[y] the cost" for the incumbent LEC "to hire 25 additional workers to increase hot cut volume, which cost GCI over $3 million per year." *Id.* at 34; *id.*, Declaration of Frederick W. Hitz, III at para. 14.

[1430] Letter from Stephen C. Gray, President, McLeodUSA, to William F. Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147, 02-33 at 12 (filed Dec. 17, 2002) (McLeodUSA Dec. 17, 2002 *Ex Parte* Letter).

[1431] *See id.* (noting in general that "RBOCs typically impose limitations on the number of conversions from UNE-P to stand-alone unbundled loops that [can] be performed in a given CO in a given day," and notes that SBC is "most restrictive" with a limit of 25-35 orders per central office per day in the SBC Midwest region).

[1432] Letter from Rebecca M. Sommi, Vice President, Operations Support, Broadview, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Oct. 16, 2002) (Broadview Oct. 16, 2002 *Ex Parte* Letter). *But see* Letter from W. Scott Randolph, Director—Federal Regulatory Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 6 (dated Dec. 23, 2002) (Verizon Dec. 23, 2002 Hot Cut *Ex Parte* Letter) (claiming that Verizon's current internal guidelines contemplate as many as 150 hot cuts per central office). Verizon's filing, however, provides no evidence that the company has actually been able to perform hot cuts at such volumes consistently over a long-term period, as would be required upon any transition away from unbundled switching. Moreover, while Verizon claims that its guidelines could be adjusted to permit more than 150 hot cuts per day if

469. While incumbent LECs reference the Commission's determination in multiple section 271 orders that BOCs provision hot cuts at a level of quality that offers efficient competitors a meaningful opportunity to compete,[1433] and argue that performance data show that current hot cut performance is satisfactory, even as the number of hot cuts has increased,[1434] we find that the number of hot cuts performed by BOCs in connection with the section 271 process is not comparable to the number that incumbent LECs would need to perform if unbundled switching were not available for all customer locations served with voice-grade loops.[1435] In the states where section 271 authorization has

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necessary, Verizon provides no evidence that its current processes are sufficient to meet that increased demand.

[1433] *See, e.g., SWBT Texas 271 Order*, 15 FCC Rcd at 18490-93, paras. 268-73.

[1434] *See* Verizon Dec. 23, 2002 Hot Cut *Ex Parte* Letter at 3. Verizon states that between 2000 and 2001, its hot cut volume increased by 50% in Massachusetts (14,114 to 21,089), 40% in Pennsylvania (22,184 to 31,592), and more than 200% in New Jersey (3,918 to 11,845). *Id.* at 3. Verizon claims that its on-time performance in those states was 98.41%, 97.56%, and 95.91%, respectively. *Id.* Qwest also contends that its hot cut performance is excellent. Letter from Cronan O'Connell, Vice President—Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 5 (filed Jan. 7, 2003) (Qwest Jan. 7, 2003 *Ex Parte* Letter); *see also* Letter from Lawrence E. Sarjeant, Vice President Law and General Counsel, USTA, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 (filed Dec. 11, 2002) (USTA Dec. 11, 2002 *Ex Parte* Letter) (stating that "USTA incumbent LEC members are able to perform hot cuts in volumes and timeframes that, in the context of their particular circumstances, support the finding that the removal of switching from the UNE list will not impair the ability of competitive LECs to provide local exchange and exchange access services"). Verizon states that its performance data show that it "routinely meets 95 percent or more of its installation appointments on time." Verizon Comments at 102.

[1435] Based entirely on the Commission's prior findings in section 271 orders, Chairman Powell and Commissioner Abernathy claim that

incumbent LEC hot cut processes cannot be a source of impairment. *See Chairman Powell Statement* at 4-5; *Commissioner Abernathy Statement* at 5-6. To begin with, the dissenters completely ignore the volume of evidence in the record of this proceeding that hot cuts create significant barriers to providing service, offering no response or explanation whatsoever. Moreover, contrary to their contentions, the Commission's prior findings in section 271 orders do not support a finding here that competitive carriers would not be impaired if they were required to rely on the hot cut process to serve all mass market customers. At most, these orders found that the specific companies at issue "will be able to handle reasonably foreseeable demand volumes." *Commissioner Abernathy Statement* at 6 (quoting *Bell Atlantic New York 271 Order*, 15 FCC Rcd at 3993, para. 89). Leaving aside the fact that these orders applied only to specific BOCs in specific states and by no means make any findings with respect to BOCs or incumbent LECs generally, these orders examined the adequacy of hot cuts at a time when competitive LECs were principally using unbundled local circuit switching to compete for mass market customers. Indeed, the BOCs frequently relied on evidence of customers being served by unbundled loops combined with unbundled local circuit switching to support their Track A findings of sufficient facilities-based competition. *See, e.g.*, *BellSouth Georgia/Louisiana 271 Order*, 17 FCC Rcd at 9026-27, para. 15; *SBC California 271 Order*, 17 FCC Rcd at 25656, para 12; *Application of Verizon New England Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions) and Verizon Global Networks Inc. for Authorization to Provide In-Region, InterLATA Services in Massachusetts*, CC Docket No. 01-9, Memorandum Opinion and Order, 16 FCC Rcd 8988, 8990, para. 224 (2001) (*Verizon Massachusetts 271 Order*); *Verizon Global Networks Inc., and Verizon Select Services Inc. for Authorization to Provide In-Region, InterLATA Services in Vermont*, CC Docket No. 02-7, Memorandum Opinion and Order, 17 FCC Rcd 7625, 7630-31, para. 11 (2002) (*Verizon Vermont 271 Order*); *Application by Qwest Communications International, Inc. for Authorization to Provide In-Region, InterLATA Services in the States of Colorado, Idaho, Iowa, Montana, Nebraska, North Dakota ,Utah, Washington and Wyoming*, WC Docket No. 02-314, Memorandum Opinion and Order, 17 FCC Rcd 26303, 26317, para. 29 (2002) (*Qwest 9-State 271 Order*); *see also* Letter from Brad E. Mutschelknaus, Counsel for Broadview *et al.*, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Jan. 21, 2003) ("Notably, all four of the RBOCs have relied, in one or more States, upon the presence of UNE-P, to advance their bids for Section 271 authority."). And Chairman

been granted, unbundled local circuit switching has been available and, accordingly, the BOCs' hot cut performance has generally been limited.[1436] Moreover, we find that the issue is not how well the process works currently with limited

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Powell and Commissioner Abernathy repeatedly voted to approve orders characterizing such deployment as "facilities-based competition" for purposes of meeting section 271's requirement of the "presence of a facilities-based competitor." *See, e.g., Qwest 9-State 271 Order*, 17 FCC Rcd at 26303, para. 29 (stating that Qwest satisfies Track A, section 271(c)(1)(a)); *SBC California 271 Order*, 17 FCC Rcd at 25657, para. 15 (stating that SBC satisfies Track A, section 271(c)(1)(a)); *Verizon Vermont 271 Order*, 17 FCC Rcd at 7630-31, para. 11 (stating that Verizon satisfies Track A, section 271(c)(1)(a)). Furthermore, even in those states where there was not significant unbundled switching-based competition (*see Commissioner Abernathy Statement* at 6-7 n.12) when the Commission granted the section 271 applications for those states, the availability of unbundled loops combined with unbundled switching as a mode of entry informed the Commission's determination of reasonably foreseeable demand volumes. Here, we must consider the adequacy of current hot cut practices for handling the volumes that would be expected if competitive LECs were denied unbundled access to unbundled local circuit switching—something that was by no means "reasonably foreseeable" in the context of the section 271 orders. The section 271 orders thus tell us very little about a BOC's ability to provision large batches of cut overs in a timely and reliable manner under these circumstances. In Broadview's experience, for example, Verizon's performance measures do not apply to bulk migrations on a project-managed basis. Broadview Jan. 15, 2003 *Ex Parte* Letter at 4; *see also Application by Verizon New Jersey Inc., Bell Atlantic Communications, Inc.(d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a/ Verizon Enterprise Solutions), Verizon Global Networks Inc., and Verizon Select Services Inc., for Authorization to Provide In-Region, InterLATA Services in New Jersey*, CC Docket No. 02-67, Memorandum Opinion and Order, 17 FCC Rcd 12275, 12326, para. 109 n.309 (2002). Accordingly, the Commission's section 271 holdings by no means find that incumbent LEC performance is now adequate to meet the demands of UNE-L-based competition. Finally, our decision does not overlook the possibility that if in some markets the incumbents' ability to perform batch hot cuts does not pose impairment, the states may simply make findings to this effect.

[1436] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 9-10.

hot cut volumes, rather the issue identified by the record is an inherent limitation in the number of manual cut overs that can be performed, which poses a barrier to entry that is likely to make entry into a market uneconomic.[1437] Our finding is also corroborated by the comments of state commissions, most notably the New York Department, which concluded that "Verizon would need to dramatically increase the number of

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[1437] The dissents assert that the majority makes unwarranted assumptions about incumbent LECs' ability to handle increased volumes in the absence of unbundled loops combined with unbundled local circuit switching. *Chairman Powell Statement* at 5; *Commissioner Abernathy Statement* at 5. It appears that they would support a finding of no impairment based on affidavits and declarations submitted by incumbent LECs attesting to their willingness and ability to handle any requested volume of hot cuts. *Commissioner Abernathy Statement* at 5. We find, however, incumbent LECs' promises of future hot cut performance insufficient to support a Commission finding that the hot cut process does not impair the ability of a requesting carrier to provide the service it seeks to offer without at least some sort of unbundled circuit switching. While incumbent LECs state that they have the capacity to meet any reasonable foreseeable increase in demand for stand-alone loops that might result from increased competitive LEC reliance on self-provisioned switching, there is little other evidence in the record to show that the incumbent LECs could efficiently and seamlessly perform hot cuts on a going-forward basis for competitors who submit large volumes of orders to switch residential subscribers. As described above, moreover, we ascribe more weight to actual evidence of competitive entry serving the relevant market than to predictive claims of incumbents' ability to handle hypothetical volumes—and the incumbents have been unable to offer compelling evidence that they have actually provisioned hot cuts in the requisite quantity. Moreover, where incumbent LECs have undergone comprehensive testing of their loop provisioning processes, state commissions have found difficulties regarding hot cut performance. Indeed, in its initial comments in this proceeding, the New York Department recognized the hot cut process as one of the "major issues that hamper the development of facilities based competition," and concluded that "[u]ntil hot cuts can be performed in much greater volumes, competitive LECs' lack of access to the UNE-P will materially diminish their ability to provide local service." New York Department Comments at 3.

hot cut orders per month if UNE-P was terminated and CLEC customers were switched."[1438] The New York Department concluded that "it would take Verizon over 11 years to switch all the existing UNE-P customers to UNE-L."[1439] Indeed, the New York Department is currently examining ways to "migrat[e] large volumes of customers from Verizon's switches to CLECs' switches more efficiently."[1440] For those reasons, the Commission's prior findings in section 271 orders do not support a finding here that competitive carriers would not be impaired if they were required to rely on the hot cut process to serve all mass market customers.

470. Competitive carriers also argue that the cost of hot cuts, exacerbated by churn, creates a cost disparity that makes it uneconomic to serve mass market customers.[1441] Competitors seeking to use their own switches must incur the costs associated with a hot cut, including both the charges assessed by the incumbent LEC and their own costs of managing and participating in the hot cut process.[1442] The hot cut cost assessed by the incumbent LEC is a non-recurring per-line charge on competitive carriers that connect their own switches to unbundled loops.[1443] The record shows that the cost of connecting each customer to the competitive LEC's

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[1438] New York Department Comments at 4 n.18.

[1439] *Id.*

[1440] *Id.* at 3.

[1441] *See, e.g.*, WorldCom Comments at 33 ("[A]fter a comprehensive evaluation, WorldCom concluded that it did not make economic sense to spend additional capital necessary to attempt . . . to enter the mass market through end-to-end facilities-based service.").

[1442] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 4-5.

[1443] *See, e.g.*, ASCENT Comments at 36; Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Michelle Carey, Chief, Competition Policy Division, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Nov. 15, 2002) (WorldCom Nov. 15, 2002 Customer Churn *Ex Parte* Letter).

switch makes it difficult to compete.[1444] Although hot cut costs vary among incumbent LECs, we find on a national level that that these costs contribute to a significant barrier to entry.[1445] WorldCom submitted hot cut non-recurring costs (NRCs) for several states, with an average non-recurring charge of approximately $51, with several states having NRCs in excess of $100.[1446] According to WorldCom, in New York, the hot cut NRC will soon rise to $185 (from $35) for each line served.[1447] Z-Tel's analysis of the New York market indicates that even if the switch itself, collocation, and maintenance were free, with a non-recurring hot cut charge of $185 per line, it would not be economic to deploy a switch to serve mass market customers in New York.[1448] In addition to

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[1444] *See, e.g.*, AT&T Comments at 216; ASCENT Comments at 36; GCI Comments at 36; WorldCom Comments at 86; ASCENT Reply at 7. If the competitive LEC uses unbundled incumbent LEC loops, this "loop access" cost includes the nonrecurring costs of moving the customer's line to the competitive LEC switch and establishing a collocation arrangement, and the recurring costs of maintaining collocation and transport to connect the customer's POTS line to the competitive LEC's switch. Because competitive LECs generally do not collocate a switch in every incumbent LEC end office but rather serve a number of collocation arrangements from a single switch, competitive LECs generally connect their switches to unbundled loops via transport facilities.

[1445] *See, e.g.*, ASCENT Comments at 36 (noting "repeated attempts by incumbent LECs to dramatically increase hot cut charges . . . confirm that hot cut costs will continue to be a highly adverse factor"); ASCENT Reply at 7; AT&T Reply at 321 (stating that "the current charges for hot cuts in many states forecloses the use of UNE-L, even in narrow situations"); BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 5 n.12.

[1446] WorldCom Feb. 12, 2003 *Ex Parte* Letter at 2-3; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 5 n.12.

[1447] WorldCom Feb. 12, 2003 *Ex Parte* Letter at 2-3.

[1448] Z-Tel Oct. 10, 2002 *Ex Parte* Letter at 2. Considering only the non-recurring cost of hot cuts, Talk America estimates that it would incur costs of $840,000 just to convert its existing customer base in New York served by unbundled loops combined with unbundled local circuit

the high non-recurring charges imposed by the incumbent LECs, the evidence in the record shows that hot cuts also require significant internal resources and expenditures which must be borne by the competitive LEC. Thus, the record evidence indicates that the non-recurring costs associated with cutting over large volumes of loops would likely be prohibitively expensive for a competitive carrier seeking to provide service without the use of unbundled local circuit switching.

471. Moreover, the evidence in the record demonstrates that there is a significant amount of churn, or movement, among mass market customers. Mass market customers move freely from carrier to carrier when they desire, and have come to expect the ability to change local service providers in a seamless and rapid manner.[1449] We find that this movement, or churn, happens most frequently in the first few months after the customer switches to a new carrier and is often driven by "winback" activities.[1450] WorldCom, for example, states that it loses 50 percent of its new local customers within the first three months of signing up for service.[1451] Z-Tel estimates that at least four percent of its lines turn over

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switching to stand-alone loops based on the promotional rate of $35 per hot cut adopted by the New York Department. Talk America Reply at 25.

[1449] *See, e.g.*, UNE-P Coalition Comments at 46 (noting that mass market customers are not used to and will not tolerate service degradation as a cost of moving from one carrier to another); Z-Tel Comments at 46-47 (stating that mass market customers expect to be able to switch their local carriers seamlessly as they can switch long distance carriers).

[1450] WorldCom Nov. 15, 2002 Customer Churn *Ex Parte* Letter at 1-2.

[1451] *Id.* WorldCom estimates that, for customers that choose its "Neighborhood" bundled local and long distance products, on average, it loses 25% of its customers within three months, 50% within six months, and 4% to 6% per month after the six-month threshold. *Id.* Although we do not rely on any individual competitors churn data, we agree that the evidence in the record establishes that churn in the mass market affects the economics of serving this market.

each month.[1452] Because of this churn, Z-Tel asserts that carriers in a competitive market cannot expect to keep any particular customer for more than 18-24 months.[1453] The evidence in the record demonstrates that customer churn exacerbates the operational and economic barriers to serving mass market customers. For example, competitive LECs incur non-recurring costs upon establishing an end user's service, but generally recover those costs over time, spreading them out over monthly customer bills; high churn rates thus often deprive competitive carriers the opportunity fully to recover those outlays. The record demonstrates that the current level of churn for carriers providing service to the mass market has significant negative revenue effects on the ability of competitive carriers to recover the high costs associated with manual hot cuts.[1454] Finally, higher volumes of customer turnover necessitate higher volumes of hot cuts than the record demonstrates incumbent carriers are currently able to provide.

[1452] Z-Tel Comments at 31.

[1453] *Id.* at 33.

[1454] Competitive LECs contend that, given the high degree of churn and relatively low monthly revenues for mass market customers, it is difficult to recoup this non-recurring charge over the entire customer base. WorldCom Nov. 15, 2002 Customer Churn *Ex Parte* Letter at 2 (stating that the high non-recurring costs associated with the hot cut process are almost impossible to recover for customers that switch to another carrier within the first six months). Z-Tel states that even if a competitive LEC received revenues of $30 per month, it would take the competitor more than six months to recover the hot cut costs, a long period of time for a market with significant churn. Z-Tel Comments at 35-36. To ameliorate these cost disadvantages, WorldCom states that UNE-L would be more feasible in many areas if competitive carriers could obtain volume discounts for hot cuts, lower transport rates, and lower collocation charges, or alternatives (other than collocation) for accessing the loop, such as EELs. *See* WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter at 6.